REVISION

2.86F

KoamTac

A New Wave in Auto ID

# User Manual KDC100

December, 2009

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**TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO ANY TYPE OF MOISTURE. DO NOT LOOK DIRECTLY INTO LASER OR POINT THE LASER INTO ANOTHER PERSON'S EYES. EXPOSURE TO THE BEAM MAY CAUSE EYE DAMAGE.**

CAUTION:

Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

WARNING:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

INFORMATION TO USER:

This equipment has been tested and found to comply with the limit of a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation; if this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user, is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient / Relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit difference from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

**WARNING:**

**RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.**

**DISPOSE USED BATTERIES ACCORDING TO THE INSTRUCTIONS.**

# 1. INTRODUCTION

Congratulations on purchasing KoamTac's revolutionary barcode scanner and data collector. Lightweight and compact, with a user-friendly design and superior functionality, KoamTac's KDC works in a variety of portable applications. Use it independently or as an accessory to your PC, PDA, or smartphone. To find out more about KoamTac, Inc. and our family of products, visit us at www.koamtac.com.

| FEATURES | KDC100 | KDC200 | KDC200P | KDC300 |
|---|---|---|---|---|
| **USB CONNECTIONS** | **2** | 1 | 1 | 1 |
| **RECHARGEABLE BATTERY** | **YES** | YES | YES | YES |
| **SCAN ENGINE** | **Laser** | Laser | Laser | Imager |
| **AUTOMATIC DATA UPLOAD** | **YES** | YES | YES | YES |
| **STORES 10,000+ BARCODES** | **YES** | YES | YES | YES |
| **KTSYNC® SOFTWARE** | **YES** | YES | YES | YES |
| **SDK FOR DEVELOPERS** | **YES** | YES | YES | YES |
| **SUPPORTS MICROSOFT© WINDOWS XP, VISTA, 7 & MOBILE 5.0+** | **YES** | YES | YES | YES |
| ***BLUETOOTH* ENABLED** | **NO** | YES | YES | YES |

*Table 1 - Features of KDC*

# 1.1 KDC Package

The standard KDC package contains:

1. One KDC Barcode Data Collector
2. One USB Cable
3. One Neck Strap
4. KoamTac Installation CD with
   - KTSync© for Microsoft Windows XP, Vista, 7 and Mobile 5.0+
   - KDC Device Driver
   - User Manual
5. One Protective Rubber Case (Optional)

NOTE: Depending on your region or distributor, package contents may vary.

*Figure 1 – KDC Package*

# 1.2 KDC Characteristics

Before you use your KDC, please become familiar with its physical characteristics. Refer to Figure 2 and Figure 3 below which indicate placement of scan and scroll buttons, OLED display, LEDs, and ports on your KDC. All KDC models are similar except for the KDC100 which includes an additional USB connector.

*KDC100 Barcode Reader and Data Collector*

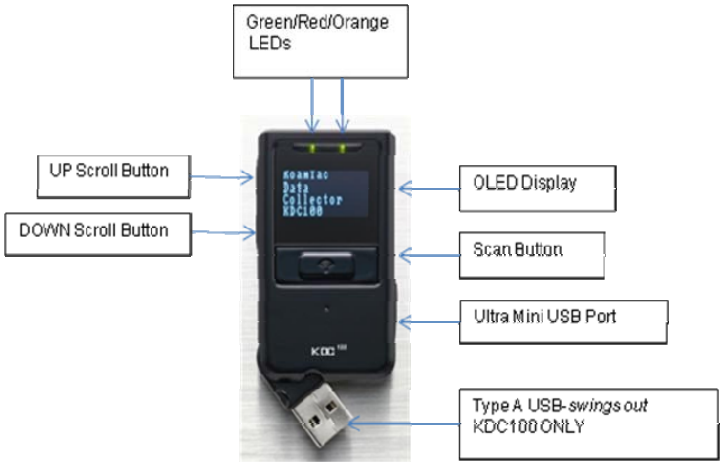
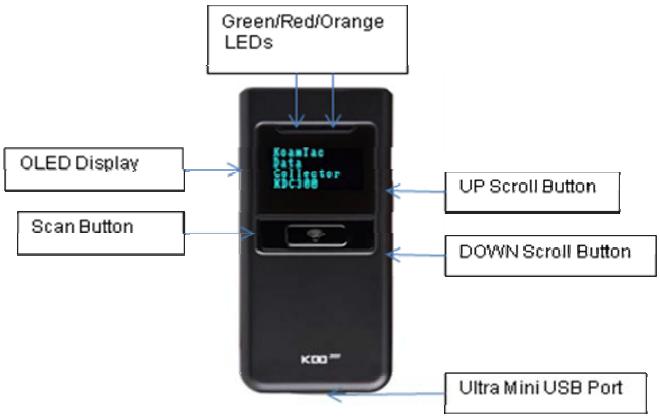



*Figure 2 - Characteristics of KDC100*

*KDC200 - KDC200P - KDC300*
*Barcode Reader and Data Collector*

*(KDC200, KDC200P)*




*(KDC300)*

*Figure 3 - Characteristics of KDC200 - KDC200P - KDC300*

# 2. INSTALLATION

## 2.1 KoamTac Installation Wizard

### *Windows XP*

**WARNING:** ***DO NOT CONNECT KDC TO USB PORT PRIOR TO INSTALLATION***

1. Insert KoamTac Installation CD into your computer's CD drive.
2. Click **Start** icon then **My Computer** icon. A listing of devices on your computer will display including the disk drive containing the KoamTac Installation CD.
3. Click on the KoamTac Installation CD icon then click on the Setup directory. Click on the PC_Setup.exe file which executes the KTSync Setup Wizard.

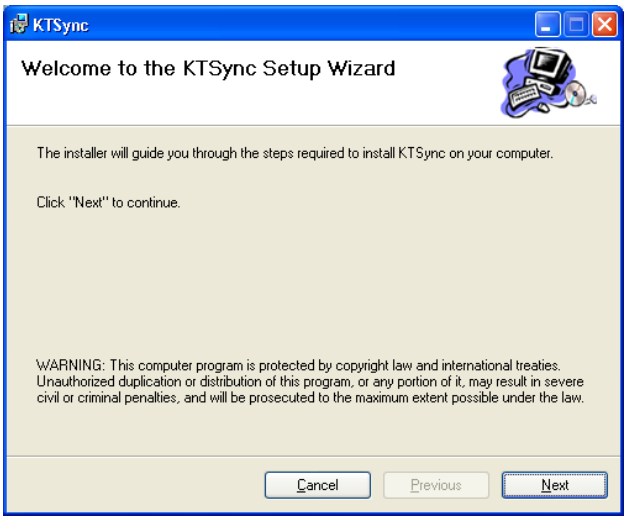
**NOTES**

- If KTSync Setup Wizard locates an older version of KTSync on your computer, you will be prompted to remove the older program before installing the new version. Select Remove KTSync then click Finish. When removal is complete, click Close. Go to Step 2 to run KTSync Setup Wizard.
- If you have any problems, please refer to the Manual Installation section.

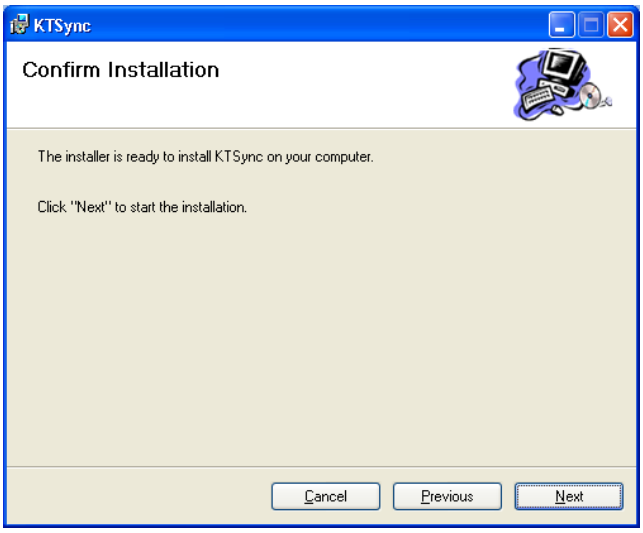
***KTSync Setup Wizard***

Below are the screen images you will see during the installation of KTSync.

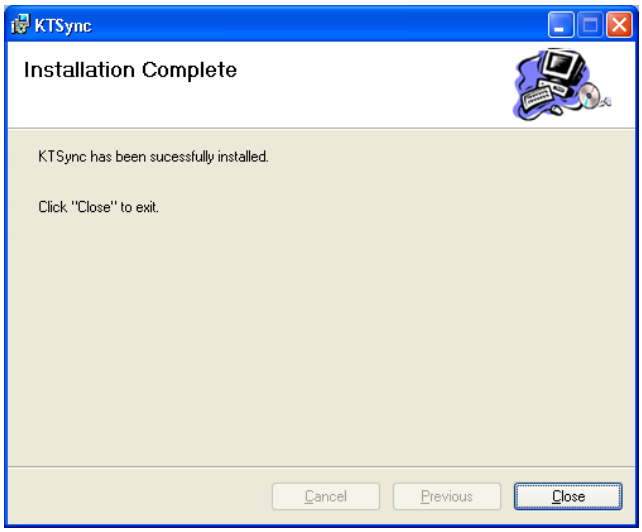
- Click **Next** icon in KTSync Setup Wizard window


KTSync
Welcome to the KTSync Setup Wizard
The installer will guide you through the steps required to install KTSync on your computer.
Click "Next" to continue.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel
Previous
Next

- Click **Next** icon in KTSync Confirm Installation window



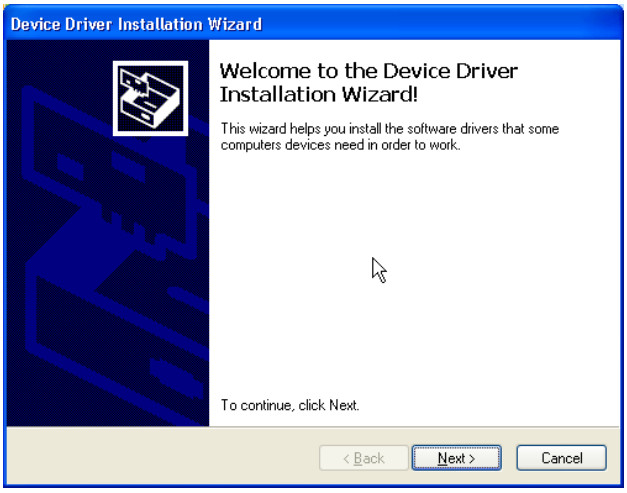

- Within a few minutes, installation of KTSync is complete. Click **Close** icon and wait for the Device Driver Installation Wizard to load.



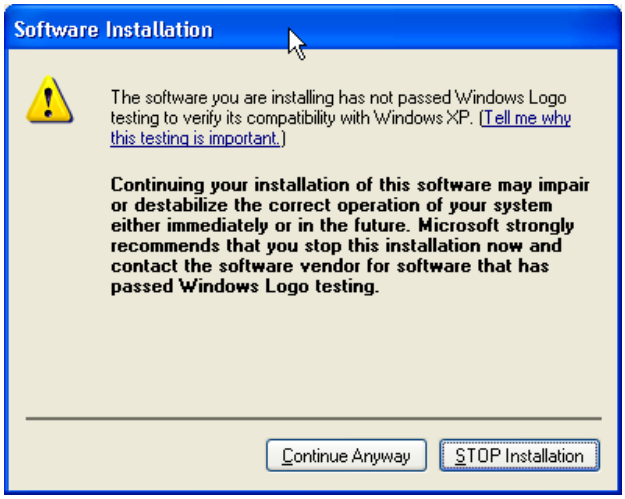
### *Device Driver Installation Wizard*

Below are the screen images you will see during the installation of the KDC Device Driver.

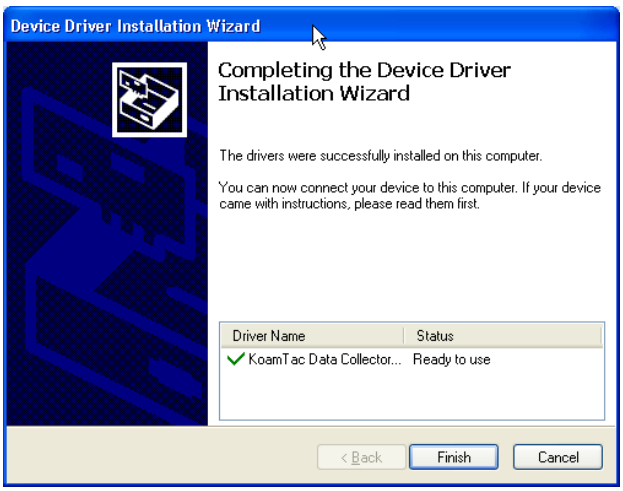
- Click **Next** icon in Device Driver Installation Wizard window


Device Driver Installation Wizard
Welcome to the Device Driver Installation Wizard!
This wizard helps you install the software drivers that some computers devices need in order to work.
To continue, click Next.
< Back
Next >
Cancel

- Click **Continue Anyway** icon in Software Installation Logo testing window


Software Installation
The software you are installing has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the software vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

- Click **Finish** icon in Device Driver Installation Wizard window


Device Driver Installation Wizard
Completing the Device Driver Installation Wizard
The drivers were successfully installed on this computer.
You can now connect your device to this computer. If your device came with instructions, please read them first.
Driver Name
Status
KoamTac Data Collector...
Ready to use
< Back
Finish
Cancel

### *Connect KDC to Computer*

Using the USB cable included with the KDC, follow the directions below.

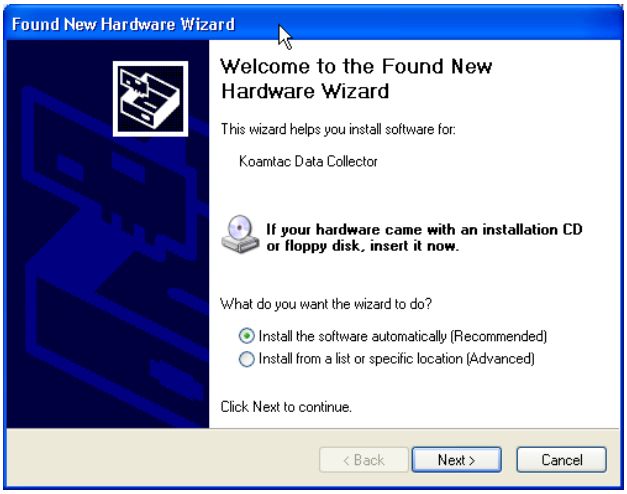
- Connect the cable's ultra mini USB connector to the KDC.
- Connect the cable's Type A USB connector to your PC.
- Wait until your computer beeps and/or displays the message Found *New Hardware.*

### *Found New Hardware Wizard*

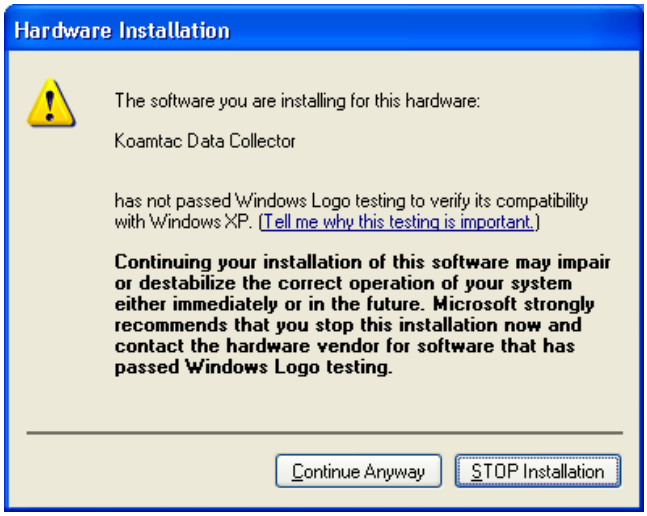
- Select "No, not this time" option in Found New Hardware Wizard and click Next if your PC pops up the following Found New Hardware Wizard.

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel

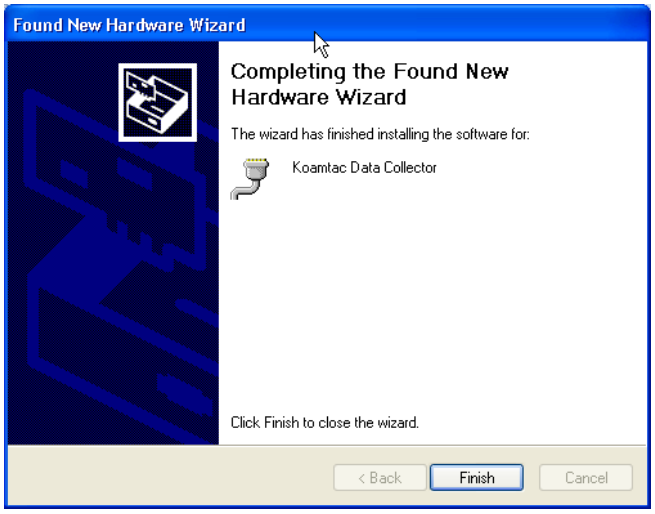
- Select "Install the software automatically (Recommended)" option in Found New Hardware Wizard and click Next if your PC pops up the following Found New Hardware Wizard.


Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install software for:
Koamtac Data Collector
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

- Click **Continue Anyway** icon in Software Installation Logo testing window

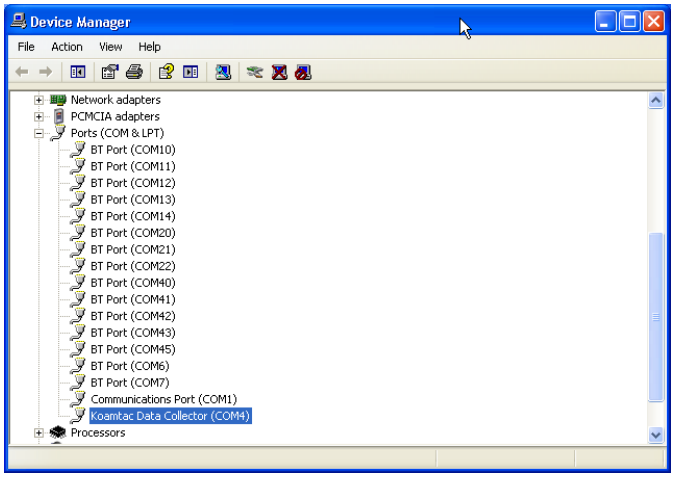

Hardware Installation
The software you are installing for this hardware:
Koamtac Data Collector
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

- Click **Finish** icon in Found New Hardware Wizard window




### *Verify COM Port Address*

- User can verify installed COM Port in Device Manager



## Vista and Windows 7

**WARNING:** ***DO NOT CONNECT KDC TO USB PORT PRIOR TO INSTALLATION***

1. Insert KoamTac Installation CD into your computer's CD drive.
2. Click **Start** icon then **My Computer** icon. A listing of devices on your computer will display including the disk drive containing the KoamTac Installation CD.
3. Click on the KoamTac Installation CD icon then click on the Setup directory. Click on the PC_Setup.exe file which executes the KTSync Setup Wizard.

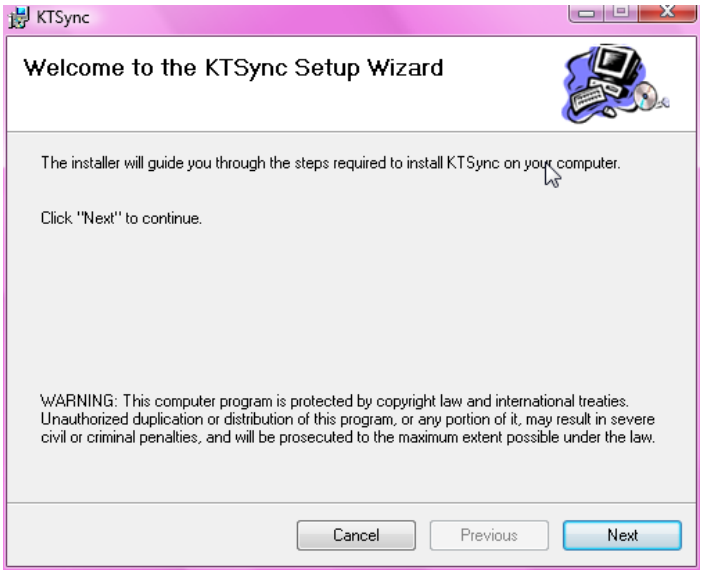
**NOTES**

- If KTSync Setup Wizard locates an older version of KTSync on your computer, you will be prompted to remove the older program before installing the new version. Select Remove KTSync then click Finish. When removal is complete, click Close. Go to Step 2 to run KTSync Setup Wizard.
- If you have any problems, please refer to the Manual Installation section.

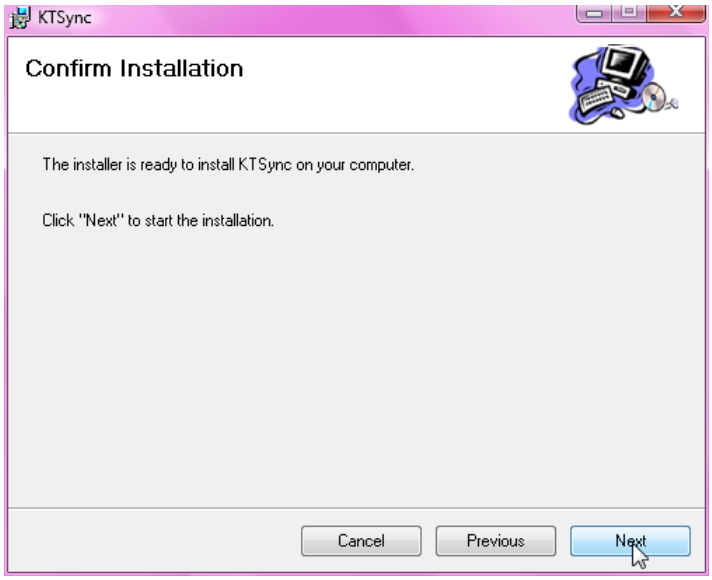
### *KTSync Setup Wizard*

Below are the screen images you will see during the installation of KTSync.

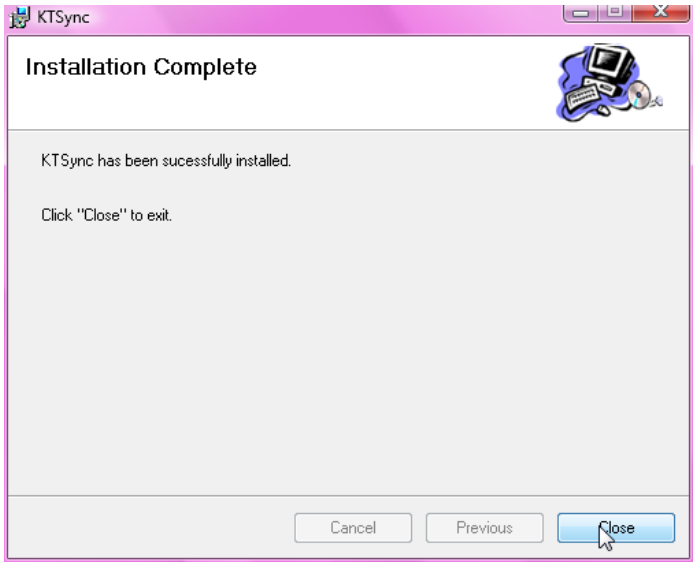
- Click **Next** icon in KTSync Setup Wizard window


KTSync
Welcome to the KTSync Setup Wizard
The installer will guide you through the steps required to install KTSync on your computer.
Click "Next" to continue.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel
Previous
Next

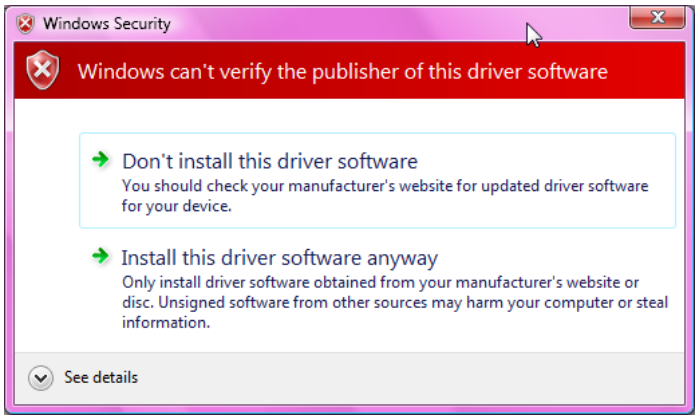
- Click **Next** icon in KTSync Confirm Installation window



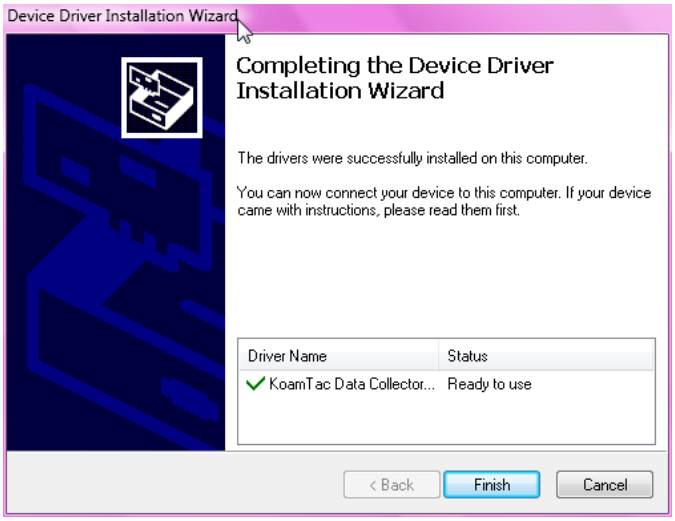

- Click **Close** icon in KTSync Installation Complete window and wait for Device Driver Installation Wizard




- **Click Install this driver software anyway** in Windows Security window


Windows Security
Windows can't verify the publisher of this driver software
Don't install this driver software
You should check your manufacturer's website for updated driver software for your device.
Install this driver software anyway
Only install driver software obtained from your manufacturer's website or disc. Unsigned software from other sources may harm your computer or steal information.
See details

- Click **Finish** icon in Device Driver Installation Wizard window


Device Driver Installation Wizard
Completing the Device Driver Installation Wizard
The drivers were successfully installed on this computer.
You can now connect your device to this computer. If your device came with instructions, please read them first.
Driver Name
Status
KoamTac Data Collector...
Ready to use
< Back
Finish
Cancel

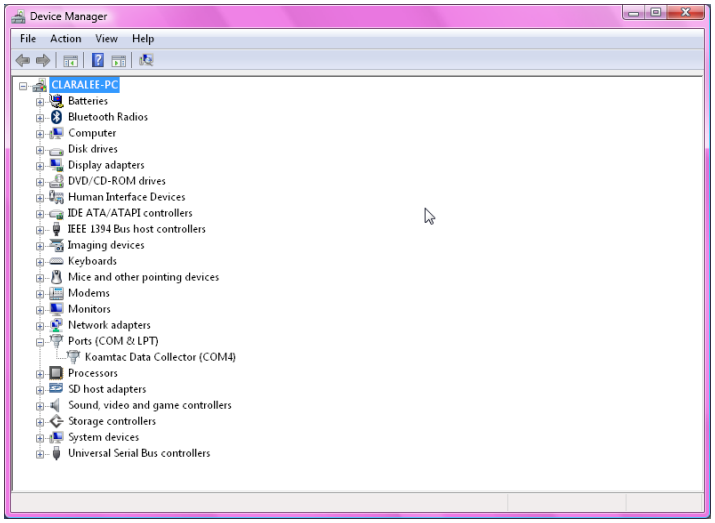
### *Connect KDC to Computer*

Using the USB cable included with the KDC, follow the directions below.

- Connect ultra mini USB connector to the KDC.
- Connect Type A USB connector to your PC.
- Wait until your computer beeps and/or displays the message Found *New Hardware.*

### *Verify COM Port Address*

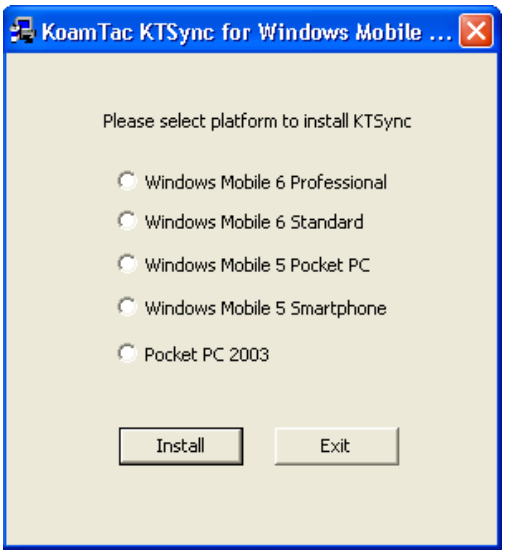
- User can verify installed COM Port in Device Manager



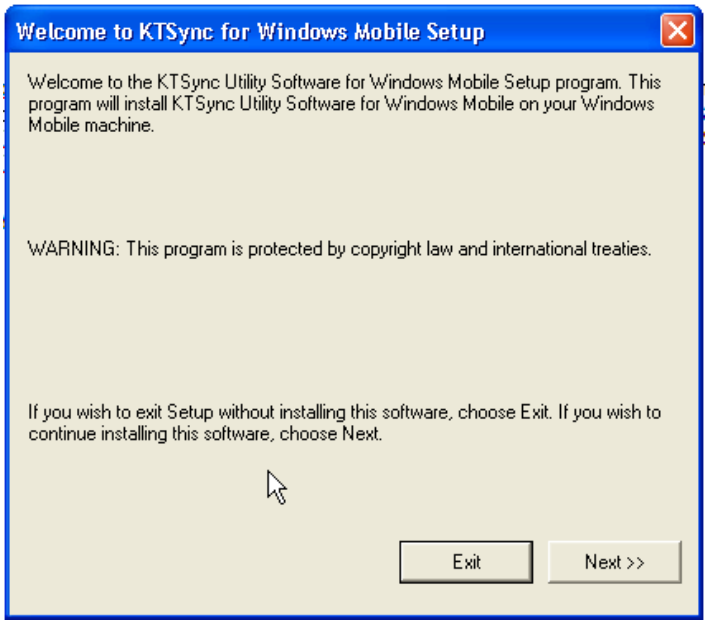
**WARNING:** ***PLEASE CONNECT PDA TO PC PRIOR TO INSTALLATION***

1. PC_Setup.exe creates Mobile_Setup.exe file under C:\Program Files\KoamTac\KTSync\Windows.Mobile directory
2. Execute Mobile_Setup.exe

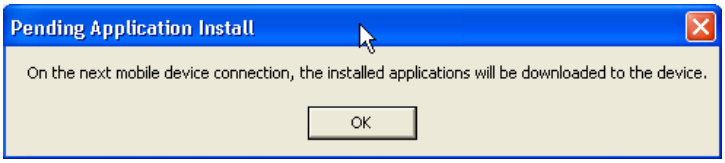
- Select Windows Mobile version to install.




- Click Next icon.


Welcome to KTSync for Windows Mobile Setup
Welcome to the KTSync Utility Software for Windows Mobile Setup program. This program will install KTSync Utility Software for Windows Mobile on your Windows Mobile machine.
WARNING: This program is protected by copyright law and international treaties.
If you wish to exit Setup without installing this software, choose Exit. If you wish to continue installing this software, choose Next.
Exit
Next >>

- Click **OK** icon in Pending Application Install window


Pending Application Install
On the next mobile device connection, the installed applications will be downloaded to the device.
OK

- Connect the PDA and follow the instructions on screen

### *COM port Assignment*

- Connect PDA and follow the instructions on screen
- User should assign a COM port for KDC before using pKTSync.
- User should pair KDC with PDA using PDA *Bluetooth* manager and assign a COM port for *Bluetooth* communication
- Please refer to the PDA manual for the details of COM port assignment method

# 2.2 Manual Installation

The KDC is equipped with one ultra mini USB port which is used to upload barcode data and to charge the KDC battery. Prior to using the KDC, KTSync software and KDC device driver must be installed on your computer. Using the USB cable included with the KDC, follow the directions below.

**NOTE:** ***If you have the KDC100, it has two ports, Ultra Mini and standard Type A which swings out. See Figure 2 for more details.***

## *Windows XP, Vista, and 7*

1. Insert the KoamTac Installation CD into your computer's disk drive.
2. Create a directory called KoamTac on your computer.
3. Copy XP.Vista.7 directory from KoamTac CD to KoamTac directory. The XP.Vista.7 directory contains KTSync® programs for Microsoft® Windows XP, Vista, Windows 7 and user manuals.
4. Connect KDC cable to ultra mini USB connector on the KDC.
5. Connect KDC cable to Type A USB connector on your computer. Wait until your computer beeps and/or displays the message *New Hardware Found*. You will be prompted to search for a device driver for KDC.
6. Browse then select *KTReader.inf* file from the KoamTac directory created in Step 2. Follow screen prompts to continue with the device driver installation.

**NOTE*****: KTReader.inf is the device driver for 32bit Microsoft® Windows XP, Vista, and Windows 7. If you have a 64bit computer, use KTReader.inf file from XP.Vista.64bit folder in the KoamTac directory.***

## *Windows Mobile 5.0+*

Please connect your Windows Mobile PDA to your computer before software installation.

- Create a directory and name it KoamTac on the PDA.
- Copy Mobile5.0_6.0 directory from KoamTac CD to PDA KoamTac directory.
- Mobile5.0_6.0 contains KTSync® programs for Microsoft® Windows Pocket PC 2003, Mobile 5.0, Mobile 6.0 Standard, and Mobile6.0 Professional. It also includes KDC User Manual.

# 3. OPERATING THE KDC

## 3.1 Getting Started

### *Attach Neck Strap to KDC*

To prevent possible damage to the KDC, we ***strongly*** recommend wearing it around your neck by the included neck strap. Also, please don't swing KDC by the neck strap because contact with another object may cause it to malfunction or become damaged.

To attach the neck strap:

1. Fit the thin end of neck strap through the pillar of the KDC.
2. Loop the thick end of strap through the thin loop
3. Pull the strap tight to secure

### *Charge KDC Battery*

Prior to using the KDC, you must charge its battery. To charge the battery, follow these directions.

1. Connect the KDC cable to the ultra mini USB connector on the KDC.
2. Connect the KDC cable to Type A USB connector on your computer.
3. Your KDC battery will begin charging. Within a few minutes, two small LEDs on the front panel will illuminate orange. When the battery is fully charged, the LEDs will illuminate green.

| ***KDC100*** | ***KDC200*** | ***KDC200P*** | ***KDC300*** |
|---|---|---|---|
| *2 Hours* | *2 Hours* | *2 Hours* | *4 Hours* |

*Table 2 – Approximate Time to Charge KDC Battery*

# Configure KDC

The KDC is designed to meet the data collection requirements of many different industries in a variety of dynamic situations. To perform well in these diverse environments, the KDC is designed to be configured easily and quickly. But, to perform at its maximum level, the KDC must be configured properly. Until you are familiar with configuring the KDC, it is recommended that you DO NOT modify the KDC settings. The KDC can be configured in three different methods which are explained in Section 3.3 – KDC Menus, Chapter 4 –Synchronization, and Appendix C – Special Barcodes.

**CONFIGURATION METHODS FOR THE KDC**

- KDC Menu
- KTSync® Software
- Special Barcodes

*Figure 4 - Location of Scroll Buttons*

# 3.2 Basics

## Reading Barcodes

Reading a barcode is simple. Point the KDC at a barcode and press the scan button. Be sure to point the scan engine at the barcode, not at your face, and make sure to position the light beam on the barcode. If the barcode is scanned successfully, you will hear one beep and the LEDs will illuminate in green. The scanned barcode data will display along with the scan time and battery level. *Depending on the configuration of your KDC, other information may also display.*

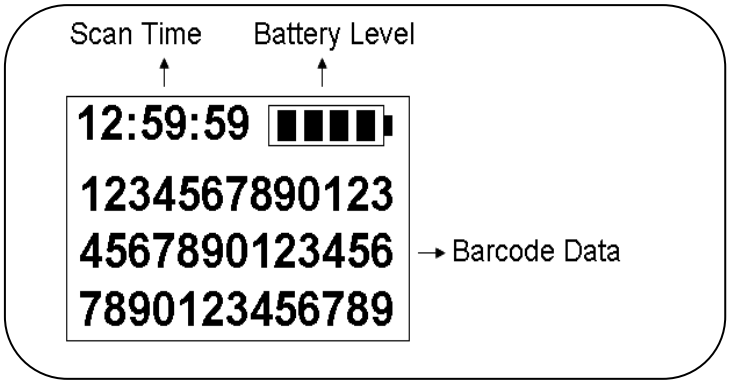



*Figure 5 - KDC Display*

If the scan was unsuccessful, you will hear two beeps, the LEDs will illuminate in red, and the message ***Failed reading…*** will display. If you have problems scanning a barcode, try the following suggestions while pointing the KDC at the barcode and depressing the scan button.

- Modify the angle of the KDC in relation to the barcode, making the angle bigger or smaller as needed.
- Modify the distance between the barcode and the KDC, moving closer or further away as needed.
- Check option settings defined in the KDC menu section and change options as needed.
- Check that the barcode's width does not exceed the light beam's width and vice versa.

## Synchronizing Barcode Data to PC

Use the KTSync® program to synchronize barcode data from the KDC to your PC. Please refer to Chapter 4 for details.

# 3.3 KDC Menus

| Top Menu | Sub Menu | Note |
|---|---|---|
| ***KDC Mode*** | Normal | Default |
| | Application | Custom Application |
| ***View Data*** | View/Delete | View/Delete Data |
| ***Set Barcodes*** | EAN13 | Enable/Disable |
| | EAN8 | Enable/Disable |
| | UPCA | Enable/Disable |
| | UPCE | Enable/Disable |
| | CODE39 | Enable/Disable |
| | ITF14 | Enable/Disable |
| | CODE128 | Enable/Disable |
| | I2of5 | Enable/Disable |
| | CODABAR | Enable/Disable |
| | GS1-128 | Enable/Disable |
| | CODE93 | Enable/Disable |
| | CODE35 | Enable/Disable |
| | BooklandEAN | Enable/Disable |
| | EAN13withAddon | Enable/Disable |
| | EAN8withAddon | Enable/Disable |
| | UPCAwithAddon | Enable/Disable |
| | UPCEwithAddon | Enable/Disable |
| ***Barcode Options*** | CodaBar_NoStartStopChars | Narrow/Wide |
| | UPCE_as_UPCA | Narrow/Wide |
| | EAN8_as_EAN13 | Narrow/Wide |
| | UPCE_as_EAN13 | Narrow/Wide |
| | ReturnCheckDigit | Narrow/Wide |
| | VerifyCheckDigit | Narrow/Wide |
| | UPCA_as_EAN13 | Narrow/Wide |
| | I2of5_VerifyCheckDigit | Narrow/Wide |
| | Code39_VerifyCheckDigit | Narrow/Wide |
| | I2of5_ReturnCheckDigit | Narrow/Wide |
| | Code39_ReturnCheckDigit | Narrow/Wide |
| | UPCE_ReturnCheckDigit | Narrow/Wide |
| | UPCA_ReturnCheckDigit | Narrow/Wide |
| | EAN8_ReturnCheckDigit | Narrow/Wide |
| | EAN13_ReturnCheckDigit | Narrow/Wide |
| ***Scan Options*** | Scan Angle | Narrow/Wide |
| | Filter | Normal/High |
| | Time Out | .5 seconds to 10 seconds |
| | Min. Barcode Length | 2 to 36 characters |
| | Security Level | 1 to 4 level |
| | Partial Display | ● Start Position<br>● No. of Char(s) |

| Top Menu | Sub Menu | Note |
|---|---|---|
| ***Data Process*** | Wedge / Store | Wedge Only |
| | | Wedge & Store |
| | | Store Only |
| | | Wedge & Store if Sent |
| | | Wedge & Store if Not Sent |
| | Data Format | Barcode only |
| | | Packet Data |
| | Handshake | Enable/Disable |
| | Terminator | None, CR, LF, CR+LF, or Tab |
| ***Data Editor*** | Prefix | Delete |
| | Suffix | Delete |
| | AIM ID | None/Prefix/Suffix |
| | Partial Data | Start Position/Length |
| ***Bluetooth*** *KDC 200 KDC200P KDC300 only* | Power | Enabled/Disabled |
| | Auto Connect | Enabled/Disabled |
| | Auto Power On | Enabled/Disabled |
| | Auto Power Off | Enabled/Disabled |
| | Beep Warning | Enabled/Disabled |
| | Power Off Time | 1 to 30 minutes |
| | PowerOff Msg | Enabled/Disabled |
| | Mac Address | 12 Characters *Bluetooth* Mac Address |
| | BT FW Version | 1.1.x Bluetooth Firmware Version |
| | Connect to | Connect to *Bluetooth* device |
| | Wakeup Nulls | Enabled/Disabled |
| ***PDF417*** *KDC200P only* | Quality | 1 to 4 |
| | Tilt | 1 to 6 |
| | Start/Stop | Enable/Disable |
| ***System*** | Memory Status | No. of Stored Barcodes & Free Memory Available |
| | Reset Memory | Empties Data Memory |
| | Sleep Timeout | Disabled to 10 minutes |
| | Date / Time | YYYY:MM:DD or HH:MM:SS |
| | Battery | % of Battery Charge Available |
| | Version | Firmware Version & Serial No. |
| | Button Lock | Enabled/Disabled |
| | Beep Sound | Enabled/Disabled |
| | Auto Exit | Enabled/Disabled |
| | Port Status | Enabled/Disabled |
| | Display Format | ● Time & Battery<br>● Type & Time<br>● Type & Battery<br>● Memory Status |
| | Scrolling | Enabled/Disabled |
| | Factory Default | Restores Default Settings |

*Table 3 - KDC Menu Options*

## KDC Mode Menu

The KDC Mode Menu has two options – Normal and Application modes.

- Normal: This is the default mode which provides basic barcode scanning. In Normal mode barcode data can be manipulated directly through the KDC or using KTSync® during the synchronization process.
- Application: This mode allows you to run the user application created by Application Generation Tool described in Chapter 5.

## View Data Menu

This menu option allows you to view and/or delete barcodes stored in the KDC.

## Set Barcodes Menu

This menu lists all the barcode symbologies supported by your KDC and allows you to select the barcode symbologies you will be scanning. For maximum scan performance, you should select only the symbologies you are scanning. Please refer to Appendix A.1 – Symbologies for a detailed listing of symbologies supported by your KDC.

## Code Options Menu

Your KDC supports various Code Options including Transmission of Start and Stop Characters, Symbology Conversion, Verification of Optional Check Character, and Transmission of Check Digit. Please refer to Appendix The add-on symbol is appended to the EAN-13 barcode. The process is similar for UPCE, UPCA, and EAN-8 barcodes. Note that all the UPCE, UPCA, EAN-8, and EAN-13 formatting and conversion options are in effect. The following table should help explain the effect of various options for EAN-8 barcode 12345670 + 12.

| **Barcode** | EAN8_as_EAN13 | EAN8_ReturnCheckDigit | EAN13_ReturnCheckDigit |
|---|---|---|---|
| 1234567012 | False | True | N/A |
| 123456712 | | False | |
| 00000123456712 | True | N/A | false |
| 000001234567012 | | | true |

*Table 9 - Add-on for EAN-8 Symbology*

The add-on symbol neither contains check digit nor a terminating guard band. Every effort has been made to reduce the decoding error; however, it is likely to decode a partial scan of a 5-digit add-on symbol as a 2-digit add-on symbol. It is strongly recommended that the minimum security level is set at 2 while decoding add-on symbols. Since the decoder takes a conservative view on the add-on symbols, it is likely that the add-on symbol will be missed in the auto-discrimination mode. Auto-discrimination mode should then be avoided.

A.2 Code Options for a detailed explanation of each option.

## Scan Options Menu

- Scan Angle: Allows you to configure the laser beam angle to the barcode. Wide is 54$^{o}$ and Narrow is 27$^{o}$. The default is Wide.
- Filter: Allows you to change the Filter mode from Normal to High for poor quality barcodes. The default is Normal.
- Timeout: Allows you to set the length of time before the KDC will stop scanning a barcode from .5 second up to 10 seconds. The default is 2 seconds.
- Minimum Barcode Length: Allows you to set a barcode length from 2 characters to 36 characters. It is strongly recommended that you maximize the minimum barcode length setting to prevent possible errors. The default is 4 characters.
- Security Level: Allows you to ensure an accurate barcode reading by setting the number of times the KDC will read a barcode. Security Level is set from 1 up to 4. The higher security level means more reliable readings though some performance degradation is likely. For poor quality barcodes, we recommend increasing the security level. The default is 2.
- Partial Display: Allows you to display partial data. User defines the start position and number of characters to be display.

## Data Process Menu

***Wedge/Store*** - The KDC provides five modes of data transmission in keyboard wedging mode.

- Wedge Only: Barcode data is NOT stored in memory but transmitted to the host.
- Wedge & Store Only: Barcode data is stored in memory and transmitted to the host.
- Store Only: Barcode data is stored in memory but NOT transmitted to the host.
- Wedge & Store if Sent: If data transmission is successful, barcode data is stored in memory.
- Wedge & Store if Not Sent: If data transmission is NOT successful, barcode data is stored in memory.

***Data Format*** - The KDC provides two data formats, Barcode Only and Packet Data.

- Barcode Only: KDC transmits scanned barcodes only. User may incorporate proper data transmission error detection and correction mechanism in this mode.
  - KDC supports various termination characters for barcode only format.

- User can select <NONE>, <CR>, <LF>, <CR+LF> or <TAB> as the termination character.

- Packet Data: KDC transmits packet data with checksum to minimize transmission errors.
  - KTSync® sets Data Format to Packet Data format upon execution.
  - User may change Data Format to Barcode only if user prefers to use Barcode only mode but either KTSync program terminates abnormally or user disconnects KDC without exiting KTSync program normally.

***Handshake*** - KDC provides Handshake mode when Data Format is set to Packet Data.

- Handshake Mode will increase the reliability of barcode data transmission.
- The default mode for Handshake is Disabled.
- Data transmission speed is slower when Handshake Mode is Enabled.

***Terminator*** – KDC supports various termination characters when the Data Format mode is set to Barcode Only. This option allows you to select <NONE>, <CR>, <LF>, <CR+LF>, or <TAB> as the termination character. The default terminator is <CR+LF>.

## Data Editor Menu

***Prefix*** - Allows you to add a prefix to scanned data which can then be stored in KDC or wedged to the host. The Prefix format must be defined in the data format menu of KTSync. The maximum length for a Prefix is 11 characters. **NOTE:** This Prefix option is different from the Prefix option in KTSync which appends the prefix to data during synchronization.

***Suffix*** - Allows you to add a suffix to scanned data which can then be stored in KDC or wedged to the host. The Suffix must be defined in the data format menu of KTSync. The maximum length for a Suffix is 11 characters. **NOTE:** This Suffix option is different from the Suffix option in KTSync which appends the suffix to data during synchronization.

***AIM ID*** - Allows you to add AIM ID to scanned data which can then be stored in KDC or wedged to the host. AIM ID must be defined in data format menu of KTSync. AIM ID is either added to the end of Prefix or Suffix.

***Partial Data***: Allows you to display and store partial data. User defines the start position and number of characters to be displayed and stored.

- Select the ***x*** characters from ***y*** position
  - ✓ Set Partial Data Start Position to ***y***, Partial Data Length to ***x,*** Partial Data Action to Select
  - ✓ Partial Data Length ***0*** means Select all characters from ***y*** position.
- Erase the ***x*** characters from ***y*** position
  - ✓ Set Partial Data Start Position to ***y***, Partial Data Length to ***x,*** Partial Data Action to Erase
  - ✓ Partial Data Length ***0*** means Erase all characters from ***y*** position.

## System Menu

- Memory Status: Checks the number of stored barcodes and memory usage.
- Reset Memory: Resets KDC memory by erasing all stored barcodes.
- Sleep Timeout: Sets amount of time KDC waits, when not being used, before going to *sleep.*
- Date/Time: Sets the date and time of KDC which can also be set using KTSync®
- Battery: Shows current status of battery power level.
- Version: Shows KDC firmware version and serial number.
- Button Lock: Locks or unlocks KDC scan and scroll buttons.
- Beep Sound: Enables or disables KDC beep sound.
- Auto Exit: Enables KDC to automatically exit KDC Menus.
- Port Status: Enable or disable KDC port messages.
- Display Format: Selection of display format - Time & Battery, Type & Time, Type & Battery, or Memory Status
- Scrolling : Enables or disables display scrolling for a barcode with more than 40 characters
- Factory Default: Resets certain KDC options to factory defaults. Factory defaults for all KDC models are listed below.

**KDC Mode**
Normal

**Set Barcodes**
EAN13
EAN8
UPCAUPCE
CODE39
ITIF14
CODE128
I2of5
CODABAR
GS1-128
CODE93
CODE35

**Code Options**
UPCEreturnCheckDigit
UPCAreturnCheckDigit
EAN8returnCheckDigit
EAN13returnCheckDigit

**Scan Options**
Scan Angle – Wide
Filter – Normal
Timeout – 2 seconds
Minimum Length – 4 Characters
Security Level – 2 Level
Partial Disp - Start 1, Length 0

**Data Process**
Wedge/Store – Wedge & Store Always
Data Format – Barcode Only
Handshake- Disabled
Terminator - <CR> + <LF>

**Data Editor**
AIM ID – None
Partial Data – Start 1, Length 0

**System**
Sleep Timeout – 5 seconds
Button Lock – Disabled
Beep Sound – Enabled
Auto Exit –Enabled
Port Status –Enabled
Display Format – Time & Battery
Scrolling – Enabled

*Table 4 – Factory Default Settings for KDC100*

## 3.4 LED Status

| LED Color | Status |
|---|---|
| Green | ● Successful Reading<br>● USB is connected and battery is fully charged |
| Orange | ● Low battery<br>● USB is connected and battery is charging |
| Red | ● No reading<br>● Empty battery |

*Table 5 - Explanation of LEDs*

## 3.5 Empty Battery

The KDC will display the message ***Empty Battery Connect USB*** when the battery is empty. Please charge the KDC IMMEDIATELY to prevent data collecting interruption.

## 3.6 Buffer Full

The KDC will display the message ***Buffer Full*** when the size of collected data reaches 80KB or the number of collected barcodes is 10,240. To prevent the loss of data, you should synchronize the data then reset the memory when this message displays.

# 3.7 Reset Feature

The Reset feature lets you restart the KDC if necessary without losing any stored barcode data or option settings. To reset the KDC, follow these steps.

1. Connect the KDC to your PC.
    - KDC100 - Connect to your PC directly using the *swing out,* Type A USB connector. See Figure 7.
    - KDC200 / KDC200P / KDC300 - Connect to your PC using the included cable, attaching the ultra mini USB connector to your KDC and the standard, Type A connector to your PC's USB port. See Figure 6.
2. Press DOWN scroll button and SCAN button simultaneously for 5 seconds.
3. When the LEDs illuminate yellow, release the buttons.
4. The KDC initial screen, **KoamTac Data Collector KDC** displays when reset is complete.

**Note:**

> *The KDC stores collected data into flash memory and will not lose data or the KDC settings during the reset process.*

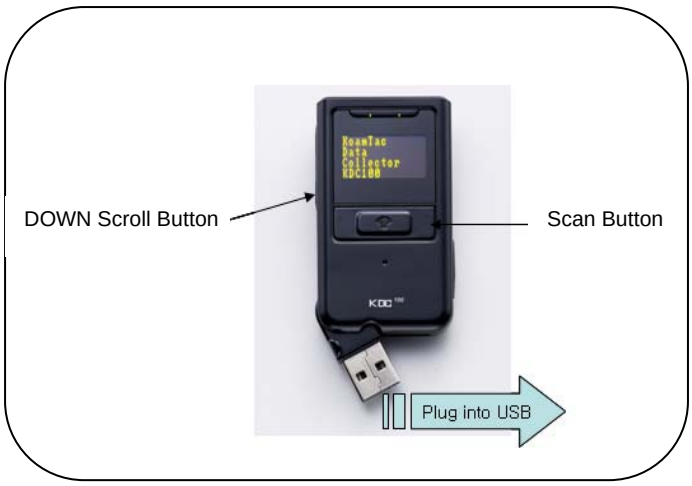



*Figure 7 - Reset Function of KDC100*

*Figure 6 - Reset Function for KDC200 - KDC200P - KDC300*

# 3.8 Replace Battery

KDC100 comes with a rechargeable, Lithium-Polymer battery. The battery is recharged from any USB port and can be recharged about 300 times before it needs to be replaced.

KoamTac recommends replacing the battery every six months as a declining battery will cause noticeable performance degradation in KDC100. Replacement batteries can be purchased from a KoamTac distributor. Batteries should be disposed properly.

**Step One** - Place KDC100 face down on a firm surface. On the back, locate the small black screw in the middle of KDC. This screw secures the battery cover.

**Step Two** - Press a small Phillips head screwdriver firmly into the screw while simultaneously turning counterclockwise and loosen the screw. The battery cover will pop open. Remove the cover, keeping the screw intact. Store cover with screw in a safe place for later.

**Step Three** - ***Gently*** lift the battery to locate a wire connector underneath the battery. The wire connector is attached to the red and black wires on the battery. It is also attached to a connector on KDC. Remove the battery using a flat head screwdriver to disengage the connectors, being careful not to damage the connector on KDC.

**Step Four** – Use a small flat head screwdriver to reattach the new battery. Connect the white connector attached to the red and black wires on the replacement battery to the connector on the KDC. Gently press the battery down, fitting it inside the KDC. Replace the battery cover. With the Phillips head screwdriver securely tighten the battery cover screw.

**Step Five** – The replacement battery must be charged before KDC can be used.

# 4. SYNCHRONIZATION

When barcode data is collected, it must be uploaded to your application. KTSync®, which is bundled with the KDC, is software that allows barcode data to be uploaded to any PC, PDA, or smartphone running Windows XP, Vista, Windows 7, or Mobile 5.0+. It has three major functions.

- Synchronization - Provides data upload functionality to your applications.
- Keyboard Emulator - Allows scanned data to upload directly into your application as if the data were being entered manually on a keyboard.
- Application Generation - Allows user to create custom applications or download predefined applications such as Master-Slave, Pick/Bin, and DB Lookup.

Additional functions include:

- Prefix and Suffix add-ons to eliminate manual data entry.
- Symbology and Scan Option selections.
- Barcode Wedging options.

## 4.1 KTSync Menu

KTSync® was installed on your PC during the initial installation process. Before data can be uploaded to any host device, KTSync® must be launched on the host and configured to recognize the KDC. The following screen displays when KTSync® is launched.

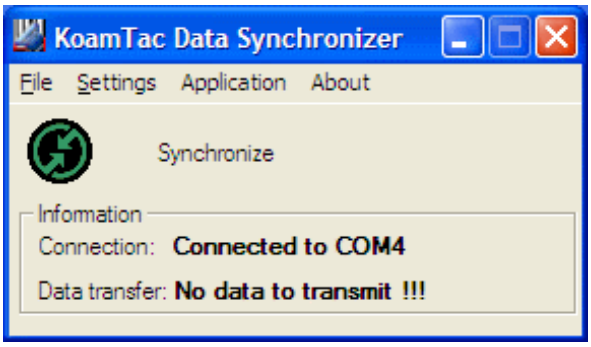



*Figure 8 - KTSync® Synchronizer Menu*

**File Menu**

- Connect: This option displays the Serial port (COM#) assigned to KDC. You can also use this option to manually assign the Serial port. The Serial port assigned to KDC can be found under Windows Device Manager. The port assignment is used by KTSync® for synchronizing data from the KDC to the host.
- Synchronize: This option manually tells the KDC to synchronize data with the host. While data is being synchronized, KTSync menu options are unavailable. **NOTE: Please do not use your**

**computer during data synchronization.**

- Bluetooth: This option is not available on KDC100.
- Exit: This option ends the KTSync program. You must re-run KTSync before you can synchronize data on the KDC.

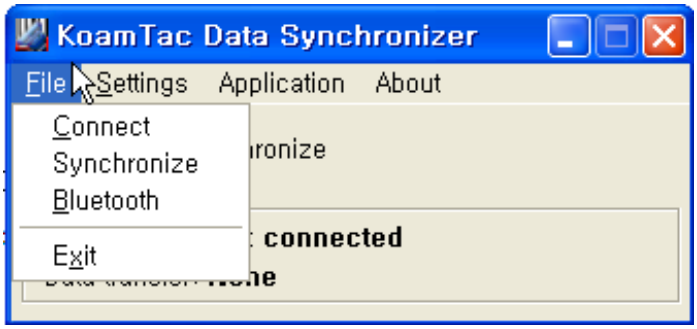



*Figure 9 – File Menu*

### Settings Menu

- Synchronization: Select Synchronize options.
- Barcode & KDC: Select Barcode and KDC options.
- Others: Select Auto Connection and/or Synchronization Confirmation options.

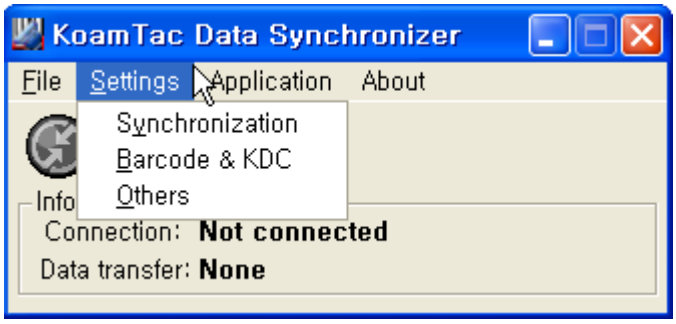



*Figure 10 – Setting Menu*

### Application Menu

- Generation: Create user application or download predefined application.
- Import: Import existing application.
- Import & Download: Import existing application and download into KDC.
- Export: Export created application.

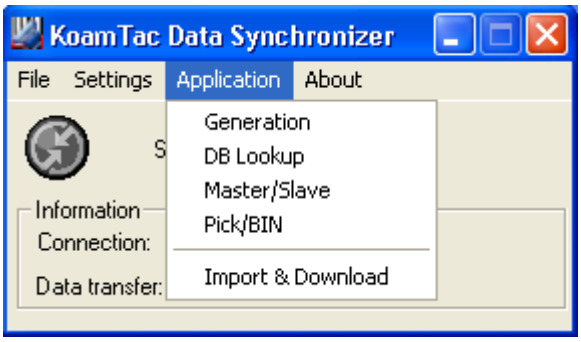



*Figure 11 – Application Menu*

**About Menu -** KTSync® - Version Information

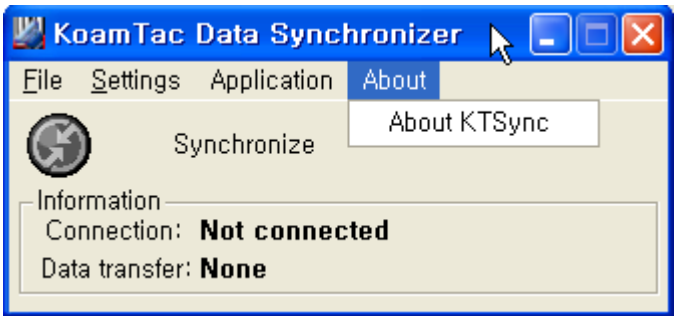



*Figure 12 – About Menu*

# 4.2 File Menu

## Connect to KDC

The KDC connects to a COM port automatically when connected to your PC's USB port. **You can manually assign the KDC COM port using KTSync® Connection submenu under File menu if needed.**

*Figure 13 - COM Port Selection for KDC*

- The COM port assignment is found in the Windows Device Manager.
- KTSync® will not connect to the KDC if it is in KDC Menus. You must EXIT from the KDC Menus.
- If KTSync® fails to connect automatically to the KDC, please follow these directions.

1. Exit KTSync®.
2. Check that you have connected the KDC to a USB port on your PC.
3. Make sure to use the cable provided with the KDC.
4. Check that the KDC is not in KDC Mode Menu.
5. Restart KTSync®.

**NOTE: You can manually assign the COM port using KTSync® Connect option under the File menu.**

## Synchronize

Under the File Menu, this option allows you to manually synchronize data on KDC with host. This option is similar to clicking on the Synchronize button in the KoamTac Data Synchronizer box.

# Bluetooth

This menu option allows you to register up to ten Bluetooth devices including their MAC address, PIN #, and optional prefixes or suffixes to eliminate redundant manual data entry and automate Bluetooth connectivity to KDC.

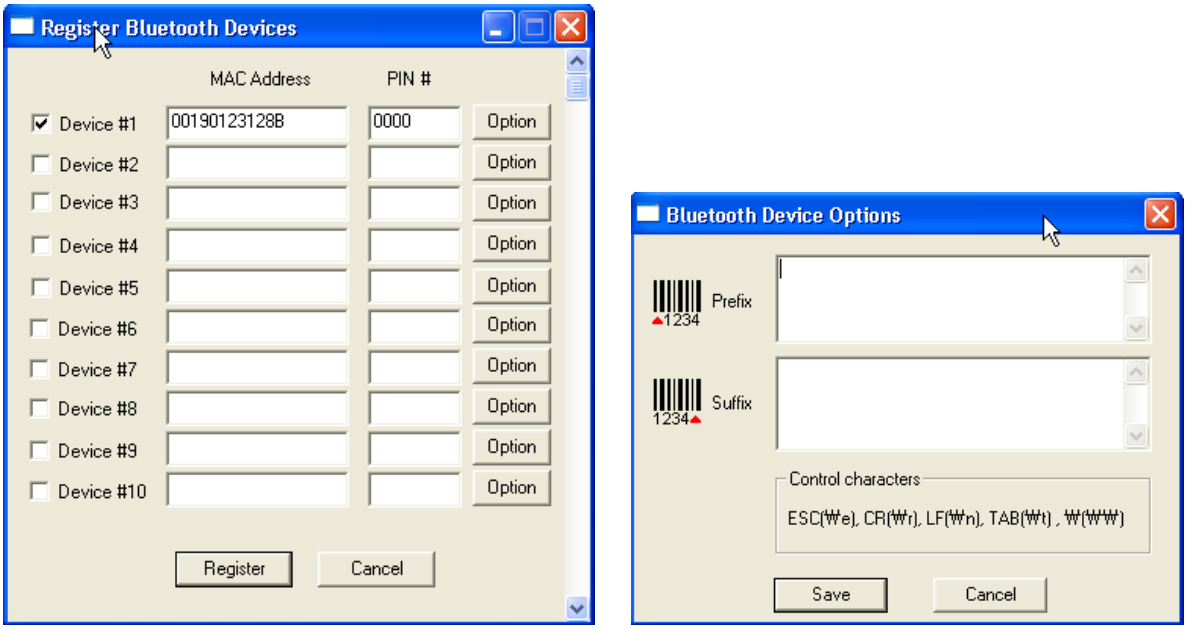



*Figure 14 - Bluetooth Device Registry*

# 4.3 Synchronization Settings

KTSync® provides several synchronization options for synchronizing data from your KDC to host devices such as your PC, PDA, or smartphone running Windows XP, Vista, Windows 7, or Mobile 5.0+.

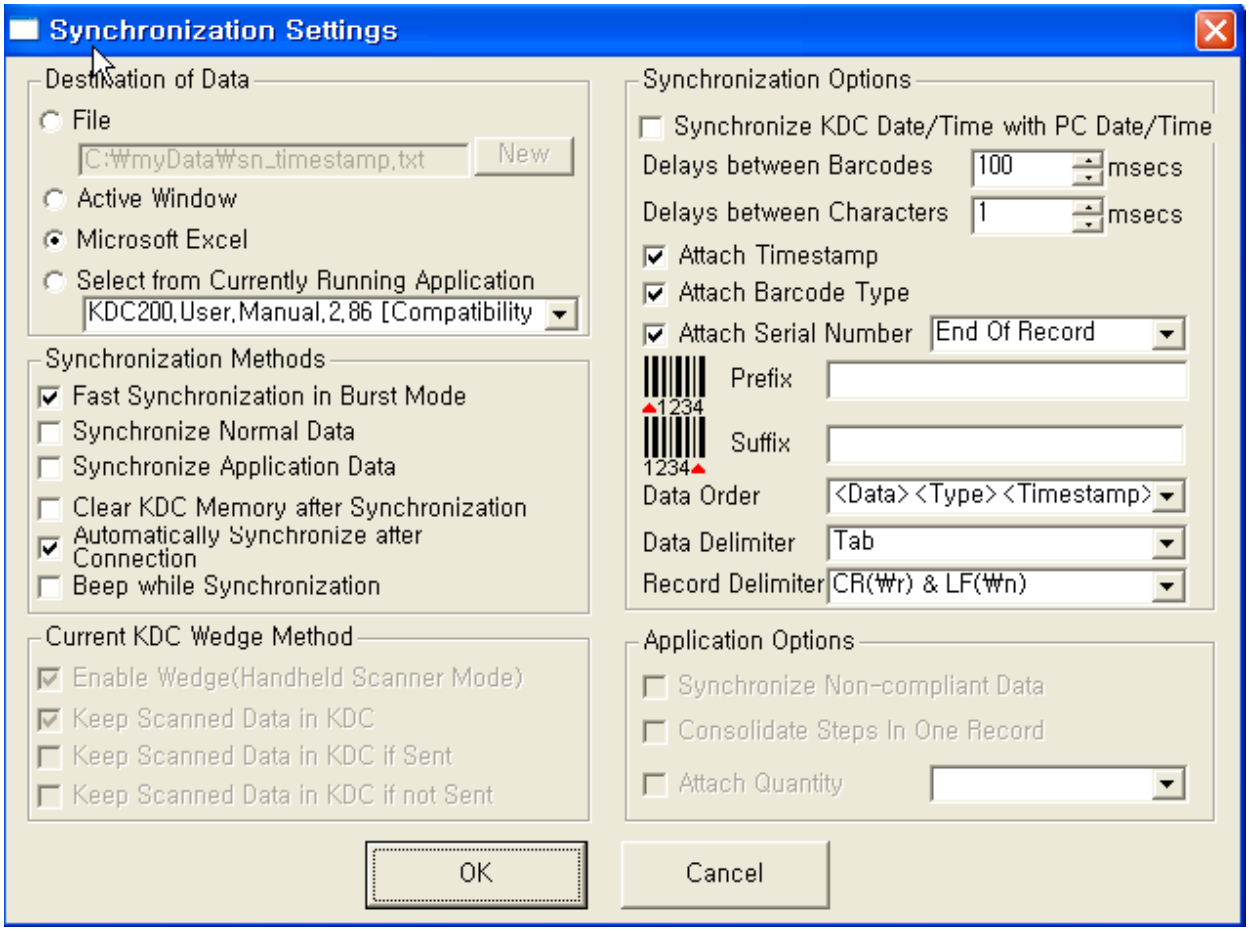



*Figure 15 - KTSync® Synchronization Settings*

## Destination of Data

When barcode data is uploaded to the host device, you must assign a destination for the data. Destination of Data options include:

- File - This option means data will be saved in the assigned filename. You can select a different target directory by clicking the New icon. C:\MyData is the default directory. If this directory is not created, you will be prompted to create it before data can be uploaded to a file.

- Active Window - This option means scanned barcode data is sent directly to the active program running on your device as if the data was being entered directly from a keyboard.
- Microsoft Excel - This option means barcode data is being imported directly into Microsoft's Excel. Various parameters can be set when uploading data to Excel.

- Select from Current Running Application – This option allows you to select a currently running application for data synchronization.

Note:

- Data synchronization begins immediately if *Automatically After Connection* is selected. If not selected, data synchronization is started manually by the user.
- Users **SHOULD NOT** operate the PC during the synchronization process. It can interrupt the process causing unreliable results.

## Synchronization Methods

### *Fast Synchronization in Burst Mode*

The KDC can synchronize data to a host device in Burst mode or Handshake mode. Burst mode provides the fastest synchronization process but could result error in poor *Bluetooth* environment. Fast synchronization in burst mode is only recommended with USB connection.

### *Synchronize Normal Data*

The KDC will synchronize Normal Data only in KDC memory if Synchronize Normal Data option is selected. If you want all data in KDC memory synchronized, you should select Synchronize Normal Data **and** Synchronize Application Data.

### *Synchronize Application Data*

The KDC will synchronize Application Data only in KDC memory if Synchronize Application Data option is selected. If you want all data in KDC memory synchronized, you should select Synchronize Normal Data **and** Synchronize Application Data.

### *Clear KDC Memory after Synchronization*

The stored barcode data is cleared from the KDC memory after synchronization if this option is selected. The KDC can store a total of 10,240 barcodes or 80KB of barcode data.

- It is important to clear the KDC memory periodically to prevent Buffer Full message which will prevent the KDC from storing additional data.
- Stored barcode data can also be deleted using the Reset Memory feature on the KDC.

### *Automatically Synchronize after Connection*

This option lets you automatically synchronize collected data to your computer immediately when the

KDC is connected to the host.

- IMPORTANT: Remember to configure all options properly before selecting this option.
- Data synchronization can be done manually by clicking the synchronize icon if this option is not selected.

***Beep while Synchronization***

You can enable or disable the beep tone during the synchronization process. A beep is sounded each and every time barcode data is synchronized if this option is selected. The KDC beeps 5 times when the synchronization process is complete.

## Current KDC Wedge Method

The KDC can be configured in one of five Wedge/Store modes -

- Wedge Only - Scanned data is transmitted to the host. The KDC does not store scanned data.
- Wedge & Store - Scanned data is stored in the KDC and transmitted to the host.
- Store Only - Scanned data is stored in the KDC but NOT transmitted to the host.
- Wedge & Store if Sent - Scanned data is stored in the KDC ONLY if transmission to the host is successfully.
- Wedge & Store if Not Sent - Scanned data is stored in the KDC ONLY if transmission to the host is unsuccessfully.

***Enable Wedge (Handheld Scanner Mode) -*** This option will be checked if Wedge Only or Wedge & Store option is selected.

***Keep Scan Data in KDC -*** This option will be checked if Store Only or Wedge & Store option is selected.

# Synchronization Options

### *Synchronize KDC Time with PC Time when Connected*

This option enables you to synchronize the KDC date and time with the host date and time. Synchronization of date and time occurs after the data is uploaded to the host device.

### *Delays*

You can set transmission delays between barcodes and characters during the synchronization process. It is important to set proper delays to prevent errors during the transmission of collected barcodes. Some Windows applications such as Excel require longer delay times.

### *Attachments*

Timestamp, Barcode Type, and Serial Number can be attached to the scanned barcode by selecting these options. The Serial Number of the KDC can be attached to the Start or End of Record.

### *Prefix and Suffix*

- Enter the characters you want appended to the front (Prefix) or back (Suffix) of the barcode in the Prefix and Suffix fields.
- The character set is any combination of ASCII characters including alphanumeric, line feed (“\n”), and carriage return (“\r”).

### *Order and Delimiter*

- Select Order of Data – Type, Data, and Timestamp
- Select the Delimiter between Data – Tab, Space, Comma, and Semicolon
- Select the Delimiter between Records – None, LF, CR, Tab, and <LF & CR>

# Application Options

### *Synchronize Non-Compliant Data*

The KDC will synchronize both compliant and non-compliant data (filtered data) if Synchronize Non-Compliant Data option is Enabled.

### *Consolidate Steps in One Record*

KTSync will consolidate the data collected in Step 1 with the data collected in Step 2 and/or Step 3. Data will be consolidated into one record instead of individual data records for each step when Consolidate Steps in One Record is Enabled. Non-complete records, i.e. three steps were defined but data was only collected for two steps; would be discarded if this option is Enabled.

### *Attach Quantity*

Quantity would be attached to the left or right of the data if this option is Enabled.

# 4.4 Barcode & KDC Settings

KTSync® allows you to configure the KDC Scan Options and Barcode Settings. The configurations options for the KDC using KTSync® are similar to the Set Barcodes, Code Options, Data Editing and Scan Options on the KDC Menu. Please refer to Appendix A for proper barcode settings for your application.

**NOTE: You must configure barcode and scan options properly for optimal KDC performance.**

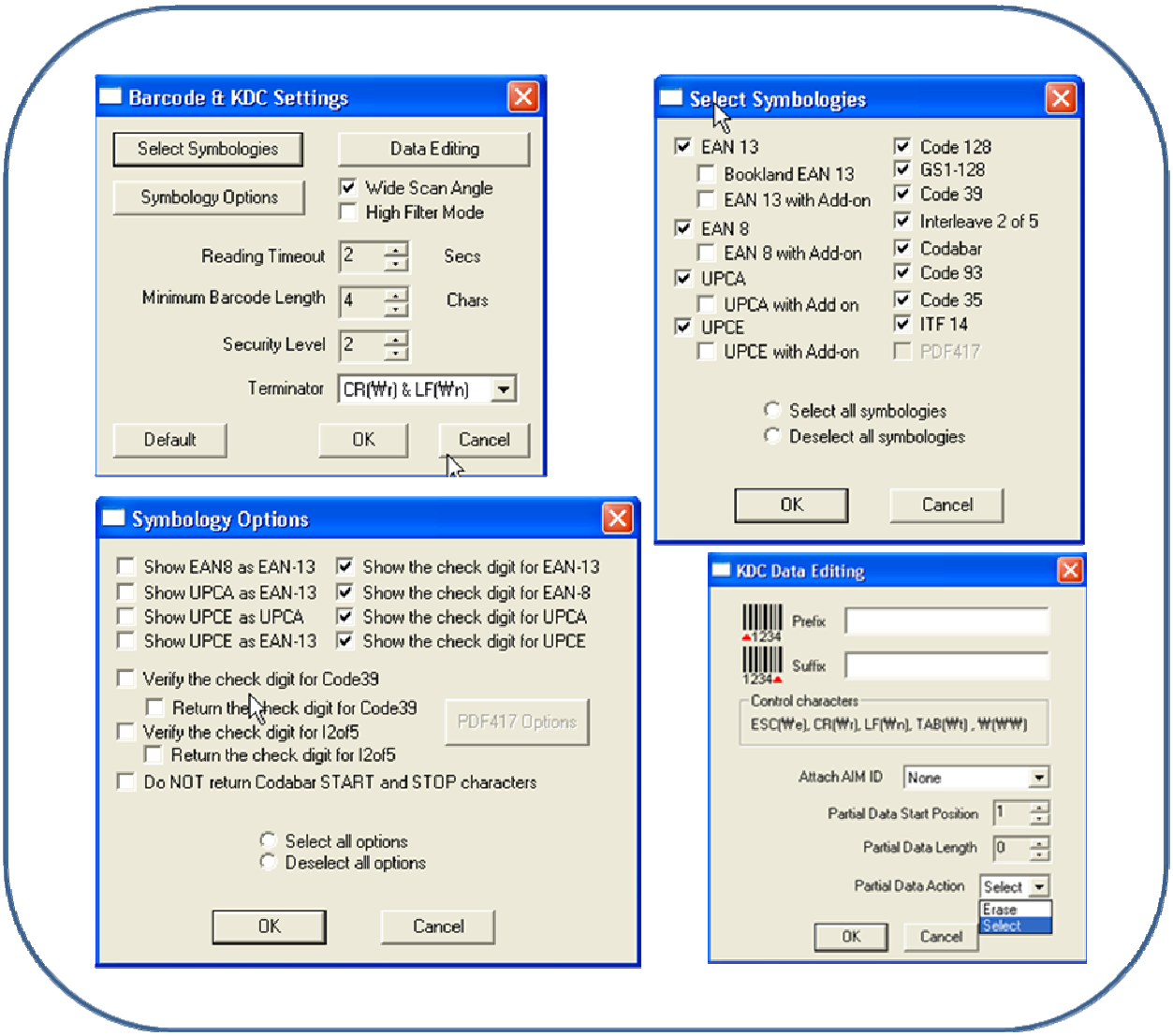



*Figure 16 - Barcode & KDC Settings, Symbologies, Data Editing and Scan Options*

# Select Symbologies and Symbology Options

The process for scanning and reading barcodes is delicate and complicated. Your KDC, though equipped with a high performance scan engine, if configured incorrectly, may not perform at its peak performance level. To ensure its high performance, the KDC comes configured to optimize its scan engine technology. Unless you clearly understand the impact of your changes to the KDC settings, please do not change factory default settings. Please refer Appendix A for details. Pressing Default icon will reset all symbology related options to factory default settings.

# Data Editing Option

***Prefix*** - Allows you to add a prefix to scanned data which can then be stored in KDC or wedged to the host. The Prefix format must be defined in the data format menu of KTSync. The maximum length for a Prefix is 11 characters. **NOTE:** This Prefix option is different from the Prefix option in KTSync which appends the prefix to data during synchronization.

***Suffix*** - Allows you to add a suffix to scanned data which can then be stored in KDC or wedged to the host. The Suffix must be defined in the data format menu of KTSync. The maximum length for a Suffix is 11 characters. **NOTE:** This Suffix option is different from the Suffix option in KTSync which appends the suffix to data during synchronization.

***AIM ID*** - Allows you to add AIM ID to scanned data which can then be stored in KDC or wedged to the host. AIM ID must be defined in data format menu of KTSync. AIM ID is either added to the end of Prefix or Suffix.

***Partial Data***: Allows you to display and store partial data. User defines the start position and number of characters to be displayed and stored.

- Select the ***x*** characters from ***y*** position
  - ✓ Set Partial Data Start Position to ***y***, Partial Data Length to ***x,*** Partial Data Action to Select
  - ✓ Partial Data Length ***0*** means Select all characters from ***y*** position.
- Erase the ***x*** characters from ***y*** position
  - ✓ Set Partial Data Start Position to ***y***, Partial Data Length to ***x,*** Partial Data Action to Erase
  - ✓ Partial Data Length ***0*** means Erase all characters from ***y*** position.

# 4.5 Others Settings

Others option under the Settings menu allows you to select four additional settings.

- **Ask Confirmation before Trying Auto Connection** prevents unintentional launch of KTSync.
- **Ask Confirmation before Starting Auto Synchronization** prevents unintentional synchronization of data.
- **Minimize KTSync on Start** will minimize KTSync and send to the tray upon execution.
- **Keep Checking *Bluetooth* Connection** allows reconnection of KDC once *Bluetooth* signal is detected. This feature is useful when moving from *Bluetooth* host device frequently. KTSync will automatically reconnect *Bluetooth* connection when you enter an effective *Bluetooth* network range. *(Not Available on KDC100)*

To select any of these settings, click on the box to the left of the setting. A check mark (√) will display next to the setting to indicate that it is selected.

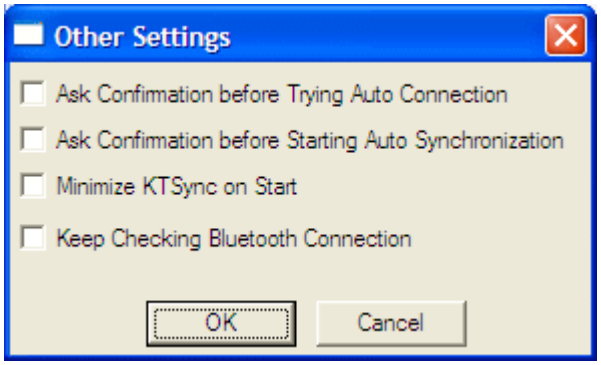



*Figure 17 - KTSync® Confirmation Settings*

# 4.6 Mobile pKTSync

***For Mobile Device Use Only***

pKTSync provides limited functionality for Pocket PC 2003 and Mobile 5.0+ users.

1. Synchronization - Provides data upload functionality to your applications.
2. Keyboard Emulator - Allows scanned data to upload directly into your application as if the data were being entered manually on a keyboard.

For detailed explanations of these functions, please refer to earlier sections of this chapter.

**WARNING: The user must assign the correct COM port to KDC prior to use pKTSync. Please refer to your mobile device manual for details on *Bluetooth* pairing and COM port assignment methods.**

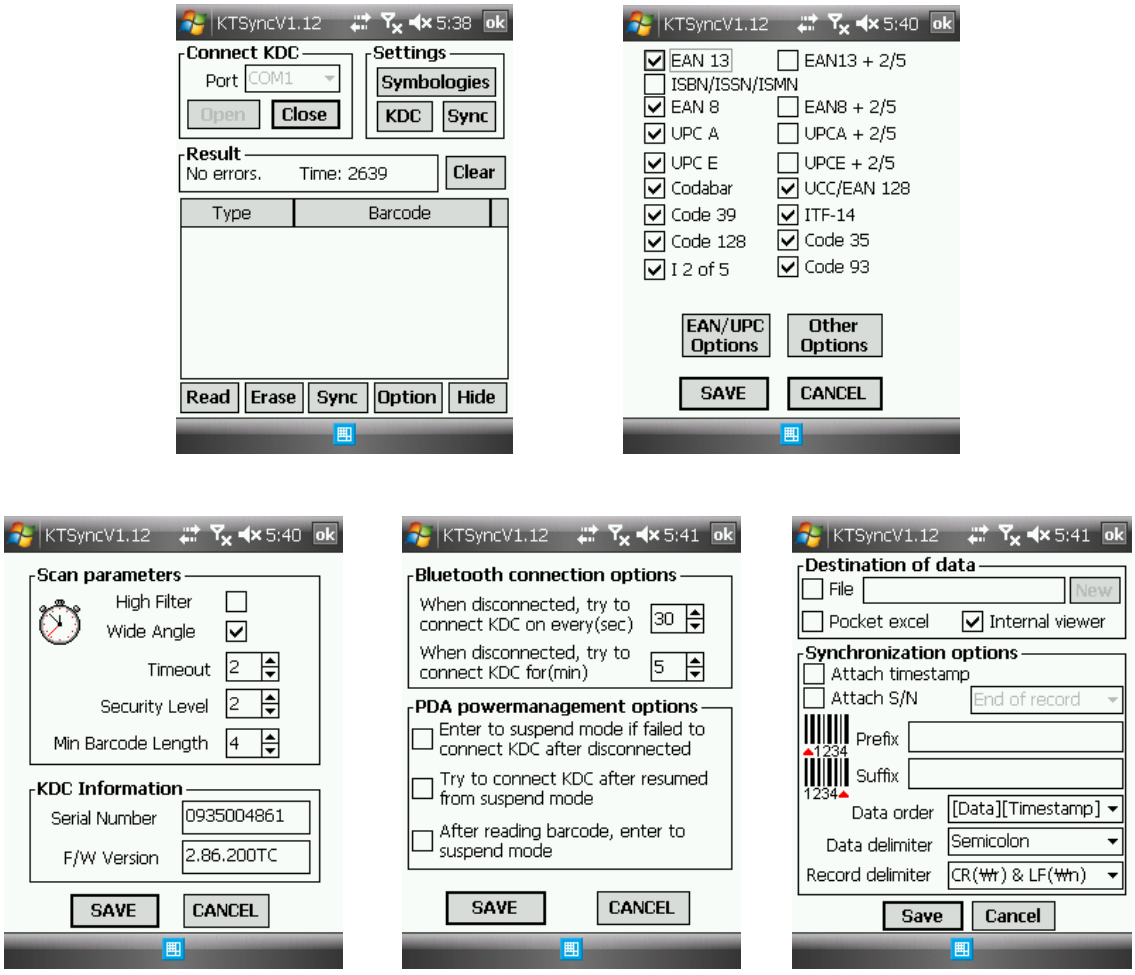



*Figure 18 – Mobile pKTSync*

# 5. APPLICATION GENERATION

When you select Application menu from the KTSync, you can choose from the following four Applications – Generation, DB Lookup, Master/Slave, and Pick/BIN. User can also download saved programs using Import & Download option.

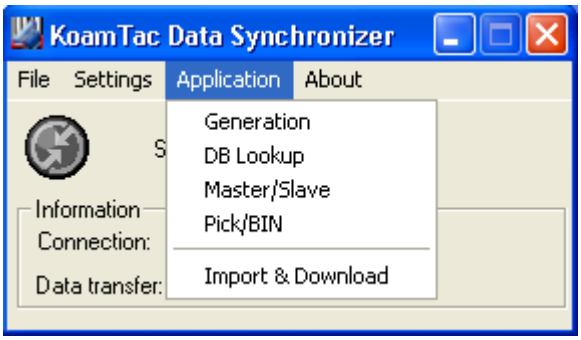



*Figure 19 – Application Menu*

When the Application tool is selected, the KDC will beep once to acknowledge a connection between the KDC and the Application tool. KTSync would popup the following warning window if downloaded application in KDC doesn't match with KTSync application tool.

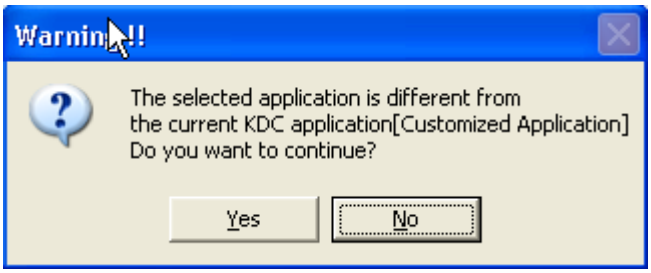



*Figure 20 – Application Warning Window*

When the Application tool is selected, the KDC will beep once to acknowledge a connection between the KDC and the Application tool. KTSync would popup the following warning window if downloaded application in KDC doesn't match with KTSync application tool.

# 5.1 Application Generation

KDC Application Generation tool is a robust feature that allows you to create custom applications for collecting and managing barcode data. To create a custom application, select the Generation submenu from the Application menu in KTSync®.

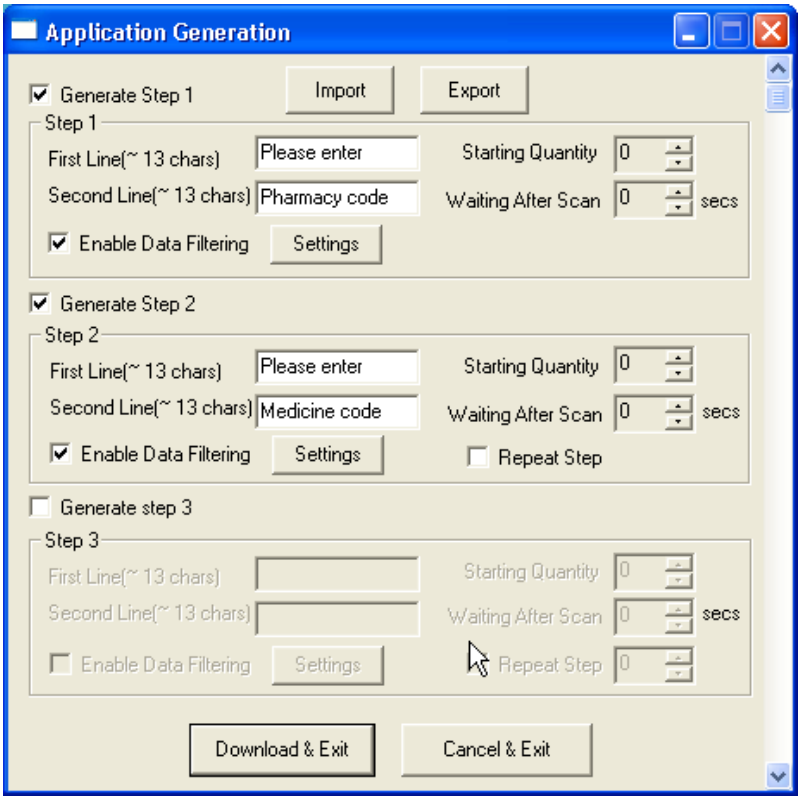



*Figure 21 – Application Generation Menu*

## *Generate Application*

***Generate step*** 1 - To generate a custom application, click on the Generate Step 1 box which enables you to define the user prompts and data collection settings for Step 1 of your custom application. Below is a description of each field. These prompts are the same when selecting Generate step 2 and Generate step 3. **NOTE: Your custom application can include only Step 1**.

- **First line**

  Enter up to 13 characters which will display on the first line of the KDC

- **Second line**

  Enter up to 13 characters which will display on the second line of the KDC

- **Starting quantity**

  Enter a predefined start quantity for each scanned barcode. The start quantity can be defined from 1 to 128 and is modifiable using up or down side key.

- **Waiting to scan**

  Enter the number of seconds the KDC pauses before the user prompts display. During this timeout period, the user can modify the quantity. If this field is set to zero, the quantity field cannot be adjusted. This field can be defined from "-1" to "30" seconds. "-1" second enables infinite waiting of user quantity input.

- **Enable data filter**

  Click on this box to enable the data filtering option. Data filtering allows you to predefine different aspects of the barcode data you are collecting.

## Data Filter Settings

When you select Enable data filtering, you must click on the Settings box to select the Data filter setting. The option for the data filter settings are the same for Step1, Step 2, and Step 3.

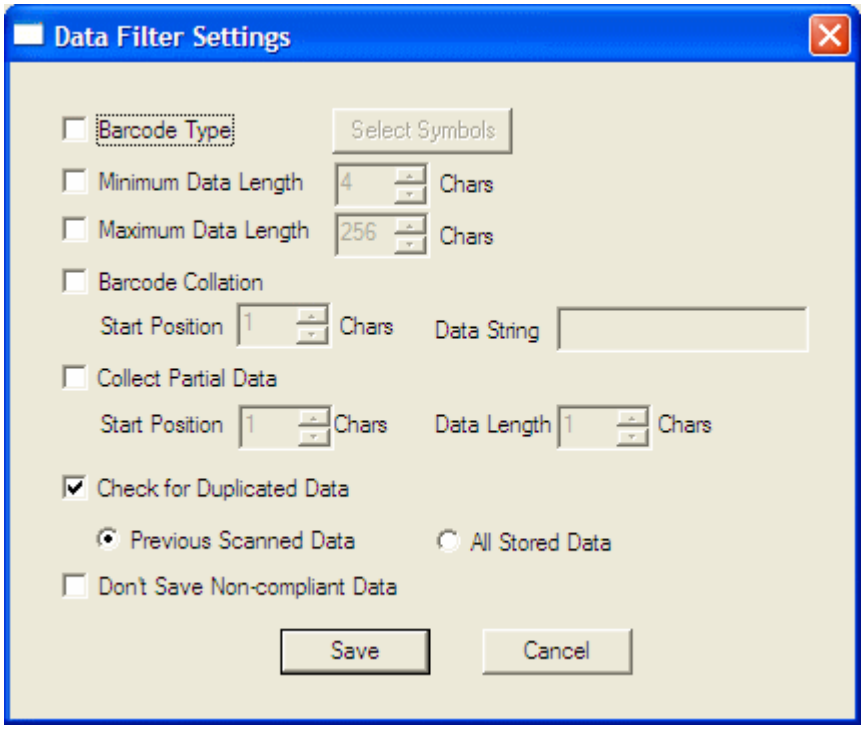



*Figure 22 – Data Filter Settings*

- **Barcode Type**

  This field allows you to select the type of barcodes the KDC will collect. When you click on the box, Select Symbols is enabled. A listing of the symbologies supported by the KDC displays. To select a barcode symbology, click on the box associated with the symbology.

- **Minimum Data Length**

  This field allows you to define the minimum length of the scanned barcode. The length can be between 2 and 36 characters. If a user scans a barcode whose length is less than the defined length, the barcode data is not collected.

- **Maximum Data Length**

  This field allows you to define the maximum length of a scanned barcode. The defined length can be between 2 and 256 characters. If a user scans a barcode whose length is greater than the defined length, the barcode data is not collected.

- **Barcode Collation**

  This option enables you to define a data string that the KDC will use to compare scanned barcodes.
  - Starting Position – This is the start position of the scanned barcode data to be compared with the defined data string.
  - Data String – This is the defined value to be compared with scanned barcode data. This value can be up to 32 characters

- **Collect Partial Data**

  This option allows you to define partial barcode data to be collected when a barcode is scanned. Only the partial data will be stored in the KDC.
  - Start position – This is the starting position that the KDC will use when collecting scanned barcode data.
  - Data Length – This is the length of partial data to be stored by the KDC

- **Check for Duplicated Data**

  This option allows you to prevent collecting duplicated data.
  - Previous Scanned Data – This option allows you to compare the scanned barcode with previously scanned barcode and treat it as non-compliant data if scanned same barcode twice.
  - All Stored Data – This option allows you to compare the scanned barcode with stored barcode data and treat it as non-compliant data if the same barcode already scanned and stored.

- **Don’t Save Non-Compliant Data**

  This field tells the KDC how to manage non-compliant data based on the defined data filtering fields.

If this field is enabled, non-compliant data is NOT stored in the KDC. If this option is not enabled, non-compliant data is stored.

***Generate step 2***

To include another step in your data collection process, click the box, Generate step 2. This step has the same options as Step 1. In this step, you have the option of repeating step 2 by clicking the box, Repeat Step. NOTE: This field is disabled when your application has three steps.

***Generate step 3***

To include a third step, click the box, Generate step 3. This step has the same options as step 1 and 2. However, in this step you have the option to repeat steps 2 or 3.

## Application Download and Execution

Prior to running your application, it must be downloaded to KDC.

- Click “Download” icon from Application Generation Window.
- Change KDC from Normal mode to Application mode.
  - Press two side buttons simultaneously to enter menu mode
  - Select KDC mode and enter scan button
  - Change to Application mode
  - Save and exit from menu mode
- KDC will run in normal mode if you don’t change to Application mode after downloading the application.

# 5.2 Predefined Applications

KTSync provides three Predefined Applications – Master/Slave, Pick/Bin, and DB Lookup.

## *Master/Slave*

Master/Slave predefined application allows you to define a ***master*** barcode for comparison with one or more ***slave*** barcodes. The predefined application can be run once or continuously and within either setting, you can define a substring for comparison of master and slave barcodes.

- **Master/Slave Onetime**
  Define one ***master*** barcode and compare it with one ***slave*** barcode.
- **Master/Slave Continuous**
  Define one ***master*** barcode and compare it with multiple ***slave*** barcodes.
- **Collation Options**
  Works in either Onetime or Continuous Mode to compare a substring within the master and slave barcodes.

  - ✓ Master start position - Select the numeric position of start substring character in Pick barcode, 1 to 255
  - ✓ Slave start position - Select the numeric position of start substring character in Pick barcode, 1 to 255
  - ✓ Comparing Barcode Length - Number of characters to be compared, 0 to 255. 0 means all characters.

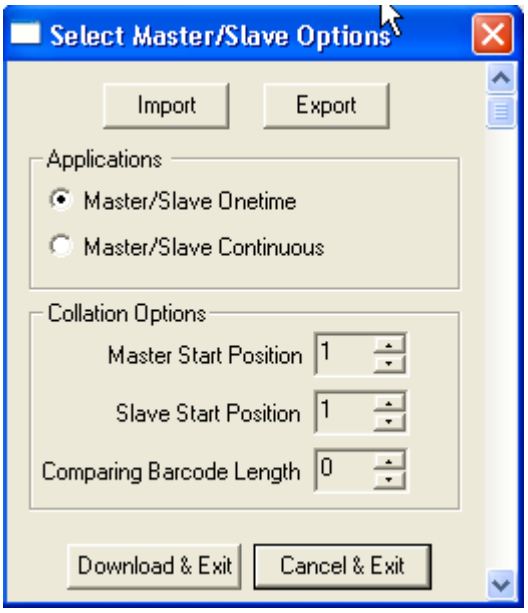



*Figure 23 – Master/Slave Application Settings*

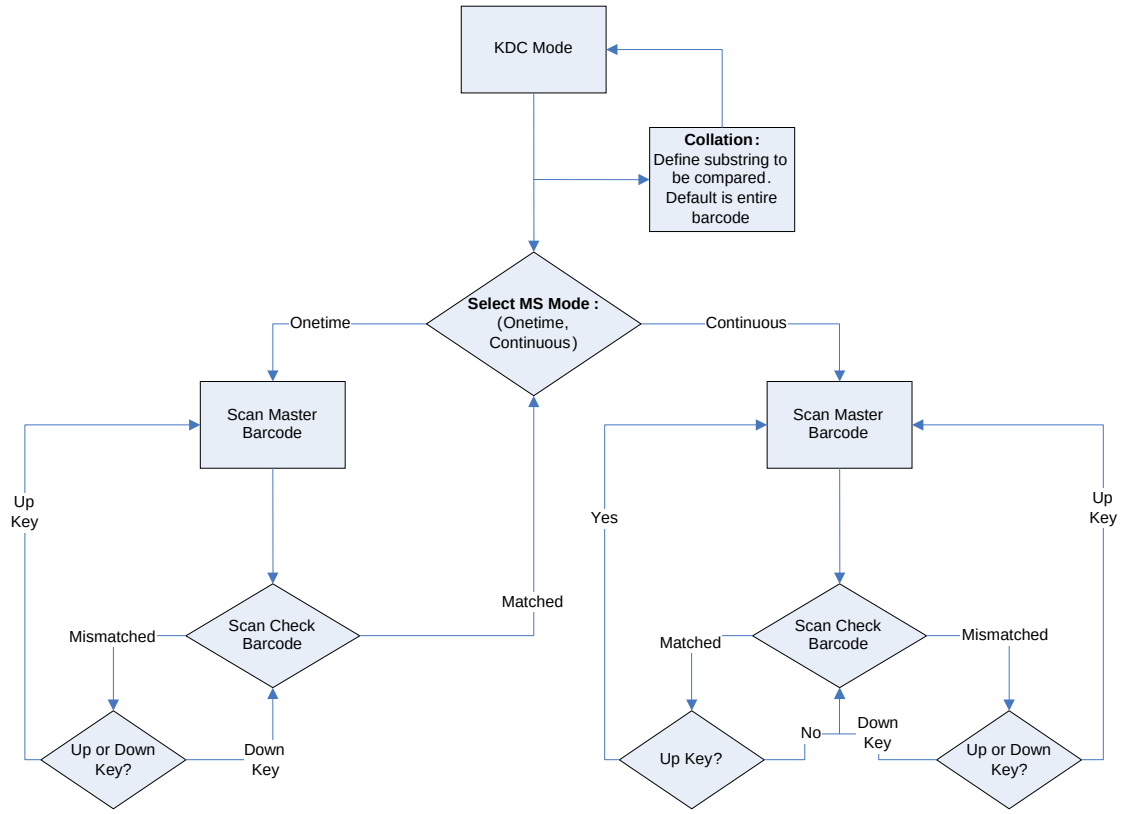



*Figure 24 – Master/Slave Application Flow Chart*

# Pick/Bin

The Pick/Bin predefined application is a special version of the Master/Slave predefined application. The Pick/Bin application allows you to define Pick ID and the barcode symbology for comparison with a defined Bin.

- **Number of ID and Symbology**

  Define Pick ID characters from 1 to 32 and the barcode symbology.
- **Pick Start Position and Symbology**

  Select numeric position of start substring character in Pick barcode from 1 to 255 and the barcode symbology.
- **Bin Start Position and Symbology**

  Select the numeric position of start substring character in Bin barcode from 1 to 255 and the barcode symbology.
- **Comparing Barcode Length**

  Select the number of characters to be compared from 0 to 255. 0 means all characters.

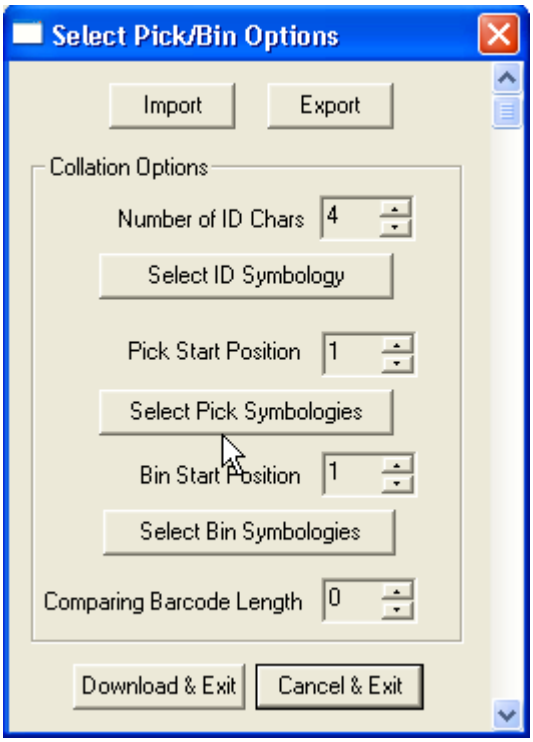



*Figure 25 – Pick/BIN Application Menu*

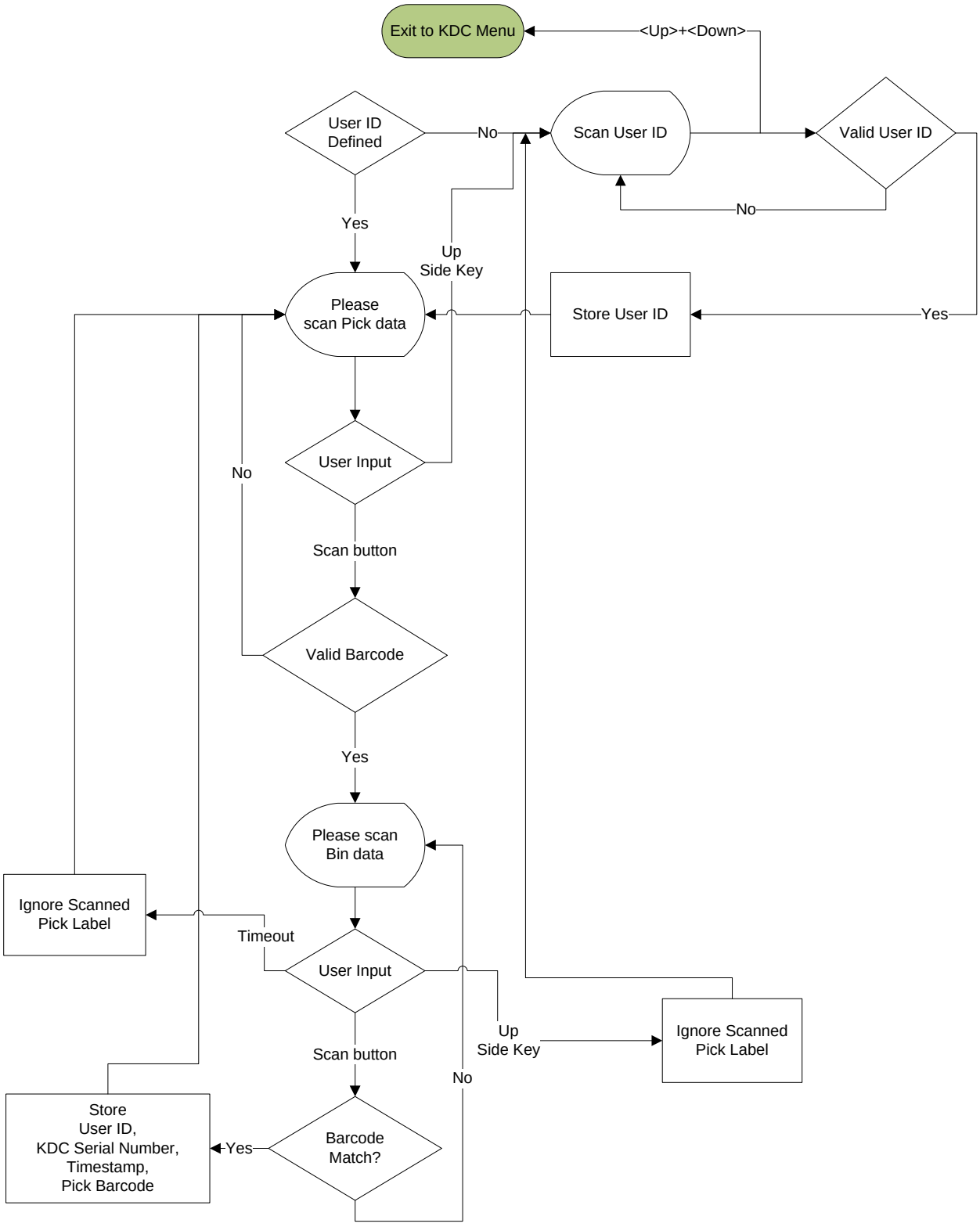



*Figure 26 – Pick/BIN  Application Flow Chart*

# DB Lookup Application

The DB Lookup application allows you to download a database to the KDC which it can then utilize for advanced AUTO-ID applications like displaying additional data after scanning a barcode. For example, using our DB Lookup application, you could download a product database including information like description, price, and stock quantity. With the advanced data functionality built-in to the KDC, you could easily display product price, description, and stock level after the product's barcode is scanned.

### *Functionality of DB Lookup Application*

- The database size cannot exceed 800 records.
- The maximum record size is 128 bytes.
- Each record can have up to 4 fields including the barcode which is the primary key.
- The maximum field size is 39 characters.
- Quantities can be entered by pressing the UP or DOWN scroll buttons after DB fields displayed.
- Quantity can be 1 to 128.
- User can create a database using Microsoft Excel.
    - Excel file must be saved as .txt.
    - Records should be separated by CR/LF
    - Fields should be separated by TAB.
    - Database should end with CR/LF.
    - Last 4 bytes of database should be CR/LF/CR/LF.

### *DB Lookup Fields and Settings*

- **Download DB to KDC -** Downloads user created database to KDC.
- **Starting Quantity -** Enter predefined start quantity for each scanned barcode. The start quantity can be defined from 1 to 128 and is modifiable using up or down scroll buttons.
- **Barcode Field -** Select the position of barcode field in database from 1 to 4.
- **Stored Barcode Start Position -** Select the numeric position of start substring character of barcode in database from 1 to 39.
- **Scanned Barcode Start Position -** Select the numeric position of start substring character of scanned barcode from 1 to 39.
- **Comparing Barcode Length -** Number of characters to be compared from 0 to 255 where 0 is all characters.
- **Display on KDC -** Define database fields to be displayed on KDC. KDC can display one to three fields. KDC will display one field in two or three lines if same field is specified in line entering option.

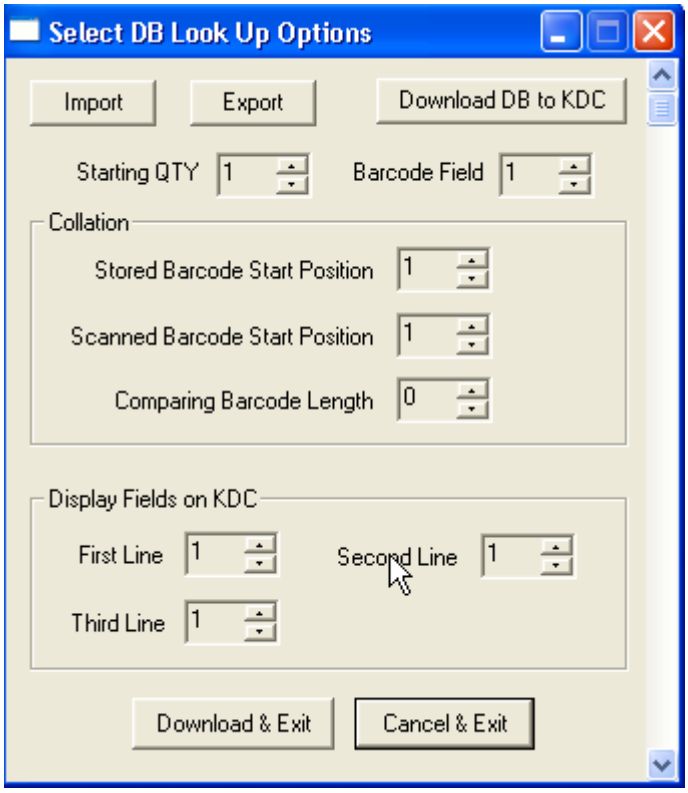



*Figure 27 – DB Lookup Application Menu*

# 6. Troubleshooting

| PROBLEM | CAUSE | SOLUTION |
|---|---|---|
| **KDC not working** | Dead battery | ● Charge battery by connecting KDC to your PC using the included cable |
| | Hardware failure | ● Contact distributor for technical support |
| **KDC not charging** | Bad battery | ● Replace battery – Contact Local Distributor |
| | Poor USB port | ● USB port doesn't supply proper current to KDC - Charge KDC using a different USB port on your PC |
| **Failed reading** | Damaged barcode | ● Scan a different barcode |
| | Out of scan range | ● Move the scanner closer to barcode<br>● Move scanner farther from the barcode |
| | Incorrect angle | ● Change the angle of scanner to barcode |
| | Symbology not supported | ● Contact KoamTac - www.koamtac.com for possibility of custom symbology support |
| | Scan options | ● Check scan option settings |
| | Dirty scan window | ● Clean scan window |
| | Damaged scan window | ● Replace scan window |
| **KDC reads wrong barcode** | Dirty scan window | ● Clean scan window |
| | Damaged scan window | ● Replace scan window |
| | Poor quality barcode | ● Select only necessary barcodes<br>● Increase minimum barcode length<br>● Increase security level |
| **Can't communicate with PC, PDA, or smartphone** | USB cable is not connected properly | ● Check cable connection between KDC and host device |
| | Software is not working properly | ● Reload the software |
| | COM configuration | ● Check COM port configurations |
| **LED blinks yellow** | Low battery power | ● Charge the battery by connecting KDC to PC.<br>● KDC will lose collected data if the battery is empty. |
| **Buffer Full Message** | Full Memory | ● Clear the Memory using Synchronization program |
| **Empty Battery Message** | Empty battery | ● Connect USB immediately.<br>● Synchronize the collected data and charge KDC |
| **Abnormal KTSync Operation on DELL PC** | Quickset Utility | ● Disable Quickset Utility before using KTSync.<br>● Dell Quickset utility interrupts normal KTSync operation |
| | WSED Utility | ● Disable WSED Wireless enable/disable utility<br>● delete the folder C:\Program Files\WSED, which contains a file WSED.exe, with the same icon as in the taskbar<br>● Delete the registry entry KEY_LOCAL_MACHINE \SOFTWARE\Microsoft\Windows\CurrentVersion\Run\WSED |

*Table 6 - Troubleshooting Techniques*

# 7. Warranty

**LIMITED WARRANTY AND DISCLAIMERS**

BY OPENING THE PACKAGE OF THIS PRODUCT YOU AGREE TO BECOME BOUND BY THE LIABILITY AND WARRANTY CONDITIONS AS DESCRIBED BELOW.

UNDER ALL CIRCUMSTANCES THIS MANUAL SHOULD BE READ ATTENTIVELY, BEFORE INSTALLING AND OR USNG THE PRODUCT.

**Serial Number**

A serial number appears on the KDC label. This official registration number is strictly related to the device purchased. Make sure that the serial number appearing on your KDC is not removed. Removing the serial number will affect the warranty conditions and liability disadvantageously, so please maintain the label with serial number on the KDC. Units with the serial number label removed should not be operated.

**Warranty/Warranty Period/Liability**

KoamTac, Inc. (“KoamTac”) manufactures its hardware products in accordance with industry-standard practices. Unless otherwise agreed in a contract, KDC is warranted for a period of one year after purchase, covering defects in material and workmanship except rechargeable battery. KoamTac will repair or, at its opinion, replace products that prove to be defective in material or workmanship under proper use during the warranty period. KoamTac will not be liable in cases (i) in which the unit has been repaired or altered unless done or approved by KoamTac, (ii) in which the unit has not been maintained in accordance with any operating or handling instructions supplied by KoamTac, (iii) in which the unit has been subjected to unusual physical or electrical stress, misuse, abuse, power shortage, negligence or accident or (iv) in which the unit has been used other than in accordance with the product operating and handling instructions. Preventive maintenance is the responsibility of the customer and is not covered under this warranty. Under no circumstance will KoamTac be liable for any direct, indirect, consequential or incidental damages arising out of use or inability to use either the hardware or software, even if KoamTac has been informed about the possibility of such damages.

**Warranty Coverage and Procedure**

During the warranty period, KoamTac will repair or replace defective products returned to KoamTac warehouse. International customers should contact the local KoamTac office or support center. If warranty service is required, KoamTac will issue a Return Material Authorization Number. Products must be shipped in the original or comparable package, shipping and insurance charges prepaid. KoamTac will ship the repaired or replacement product freight and insurance prepaid. Customer accepts full responsibility for its software and data including the appropriate backup thereof. Repair or replacement of a product during warranty will not extend the original warranty term.

CAUTION: Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user’s authority to operate the equipment.

# 8. CONTACT INFORMATION

,

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# APPENDIX A - Barcode & Scan Options

The process for scanning and reading barcodes is delicate and complicated. Your KDC, though equipped with a high performance scan engine, if configured incorrectly, may not perform at its peak performance level. To ensure its high performance, the KDC comes configured to optimize its scan engine technology. Unless you clearly understand the impact of your changes to the KDC settings, please do not change factory default settings.

## A.1 Symbologies

KoamTac's KDC products support most major barcode symbologies including 1D, 2D, Postal, and OCR-Fonts. Below is a list of the barcode symbologies supported by the KDC with respect to each models particular area of support. To ensure superior scan performance, remember to select only the required symbologies.

| | *KDC100* | *KDC200* | *KDC200P* | *KDC300* |
|---|---|---|---|---|
| *1D Barcodes* | EAN13, EAN8, UPCA, UPCE, Bookland EAN, EAN13 with Addon, EAN8 with Add-on, UPCA with Add-on, UPCE with Add-on, Interleave 2 of 5, ITF14, Code128, Codabar, GS1-128, Code39, Code93, & Code35 | EAN13, EAN8, UPCA, UPCE, Bookland EAN EAN13 with Add-on, EAN8 with Add-on, UPCA with Add-on, UPCE with Add-on, Interleave 2 of 5, ITF14, Code128, Codabar, GS1-128, Code39, Code93, & Code35 | EAN13, EAN8, UPCA, UPCE, Bookland EAN EAN13 with Add-on, EAN8 with Add-on, UPCA with Add-on, UPCE with Add-on, Interleave 2 of 5, ITF14, Code128, Codabar, GS1-128, Code39, Code93, & Code35 | Codabar, Code11, Code32, Code39, Code128, EAN8, EAN13, GS1-128, I2of5, MSI, Plessey, PosiCode, GS1 DATABAR OMNI, GS1 Limited, RSSExpand, S2of5IA, S2of5ID, TLC39, Telepen, Trioptic, UPCA, & UPCE |
| *2D Barcodes* | *N/A* | *N/A* | PFD417 | AztecCode, AztecRunes, CodablockF,Code 16K, Code49, DataMatrix, MaxiCode, MicroPDF, PDF417, & QRCode and HanXin Code |
| *Postal Barcodes* | *N/A* | *N/A* | *N/A* | AusPost, CanadaPost, ChinaPost, JapanPost, KoreaPost, KixPost, Planet Code, Postnet (US), & UKPost |
| *OCR Fonts* | *N/A* | *N/A* | *N/A* | OCR-A, OCR-B, OCRUSCurrency, OCRMICRE13B, & OCRSEMIFONT |

*Table 7 - Symbologies Supported by KDC*

### Bookland EAN vs. EAN-13

Bookland EAN which includes ISBN, ISSN, and ISMN, is supported by the KDC. This group of symbologies is essentially an EAN-13 barcode with fixed prefixes; 977 for ISSN, 978 for ISBN, and 979 for ISMN. If EAN-

13 and Bookland EAN are both enabled, Bookland EAN takes precedence. Bookland EAN does not have any options. The Bookland EAN barcode does not contain any groupings – that is, there are no hyphens or separators. Thus, the ISBN 957-630-239-0 is transmitted as 9576302390.

## Add-on Symbologies

By default, the 2 or 5 digit add-on symbols with a UPCE, UPCA, EAN-8, and EAN-13 barcode is neither decoded nor transmitted. Transmission for these specific symbologies is enabled by setting the appropriate *withAddon* options. There are 4 *withAddon* options, one for each symbology:

- **UPCEwithAddon**
- **UPCAwithAddon**
- **EAN8withAddon**
- **EAN13withAddon**

The decoding of add-on symbols is typified by the following table, which explains the process for EAN-13 symbols.

| Mode | Behavior | Value of flags | |
|---|---|---|---|
| | | EAN13 | EAN13withAddon |
| Auto-discrimination | If add-on symbol is present, then it is also decoded; otherwise only the EAN-13 symbol is decoded. | true | true |
| With add-on | Only EAN-13 barcodes with 2 or 5 add-on symbol are decoded. | false | true |
| Without add-on | The add-on symbol is ignored. | true | false |

*Table 8 - Add-on for EAN-13 Symbology*

The add-on symbol is appended to the EAN-13 barcode. The process is similar for UPCE, UPCA, and EAN-8 barcodes. Note that all the UPCE, UPCA, EAN-8, and EAN-13 formatting and conversion options are in effect. The following table should help explain the effect of various options for EAN-8 barcode 12345670 + 12.

| Barcode | EAN8_as_EAN13 | EAN8_ReturnCheckDigit | EAN13_ReturnCheckDigit |
|---|---|---|---|
| 1234567012 | False | True | N/A |
| 123456712 | | False | |
| 00000123456712 | True | N/A | false |
| 000001234567012 | | | true |

*Table 9 - Add-on for EAN-8 Symbology*

The add-on symbol neither contains check digit nor a terminating guard band. Every effort has been made to reduce the decoding error; however, it is likely to decode a partial scan of a 5-digit add-on symbol as a 2-digit add-on symbol. It is strongly recommended that the minimum security level is set at 2 while decoding add-on symbols. Since the decoder takes a conservative view on the add-on symbols, it is likely that the add-on symbol will be missed in the auto-discrimination mode. Auto-discrimination mode should then be avoided.

# A.2 Code Options

The KDC supports the following barcode options:

- Transmission of start and stop characters
- Reverse direction
- Symbology conversion
- Verification of optional check character
- Transmission of check digit

## *Transmission of Start and Stop Characters*

For Codabar symbols you can choose not to transmit the start and stop symbols, the NOTIS Editing. By default, they are transmitted. Setting the field **CodaBar_NoStartStopChars** to true disables the transmission.

## *Reverse Direction*

This option may be selected if direction oriented symbologies are selected such as Code35.

## *Symbology Conversion*

By default the EAN-8, UPCE, and UPCA symbols are transmitted in their native format. It is possible to show them in a different format. You can choose to display UPCE symbols as either UPC-A or EAN-13 symbols, EAN-8 symbols as EAN-13 symbols, or UPC-A symbols as EAN-13 symbols. The following table shows the effect of setting various options.

| Option | EAN-8 | UPC-A | UPC-E | All others |
|---|---|---|---|---|
| EAN8_as_EAN13 | Converted to EAN-13 | No effect | No effect | No effect |
| UPCA_as_EAN13 | No effect | Converted to EAN-13 | No effect | |
| UPCE_as_EAN13 | No effect | No effect | Converted to EAN-13 | |
| UPCE_as_UPCA | No effect | No effect | Converted to UPC-A | |

*Table 10 - Symbology Conversion*

## Verification of Optional "Check Digit"

Code39 and Interleave 2 of 5 have an optional check digit, which, by default, is not verified. Their verification can be enabled by selecting the option **VerifyCheckDigit** to true or you can enable the verification for individual symbologies. If the check digit verification fails then the barcode is not transmitted.

| Option Selected | Verify Code39 check digit | Verify I2of5 check digit |
|---|---|---|
| VerifyCheckDigit | Yes | Yes |
| Code39_VerifyCheckDigit | Yes | No effect |
| I2of5_VerifyCheckDigit | No effect | Yes |

*Table 11 - Verification of Optional "Check Digit"*

## Transmission of "Check Digit"

By default, the check digit – optional or mandatory – is not transmitted. Its transmission can be enabled for all symbologies by enabling **ReturnCheckDigit** option.

| Option Selected | Is the check digit returned? | | | | | |
|---|---|---|---|---|---|---|
| | EAN-13 | EAN-8 | UPC-A | UPC-E | Code39 | I2of5 |
| ReturnCheckDigit | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** |
| EAN13_ReturnCheckDigit | **Yes** | No effect | No effect | No effect | No effect | No effect |
| EAN8_ReturnCheckDigit | No effect | **Yes** | No effect | No effect | No effect | No effect |
| UPCA_ReturnCheckDigit | No effect | No effect | **Yes** | No effect | No effect | No effect |
| UPCE_ReturnCheckDigit | No effect | No effect | No effect | **Yes** | No effect | No effect |
| Code39_ReturnCheckDigit | No effect | No effect | No effect | No effect | **Yes** | No effect |
| I2of5_ReturnCheckDigit | No effect | No effect | No effect | No effect | No effect | **Yes** |

*Table 12 - Transmission of "Check Digit"*

## Resolution of Inconsistencies

Three types of inconsistencies could arise in the assignment of symbology options. The decoder has pre-defined strategies to resolve these inconsistencies: If **UPCE_as_EAN13** is true, then **UPCE_as_UPCA** is ignored.

If symbology conversion is selected but the target symbology is not enabled, then the decoder still outputs the symbol in the target symbology. For example, suppose UPC-E is enabled and **UPCE_as_EAN13** is true but EAN-13 is disabled. All UPC-E symbols will be shown as EAN-13 and EAN-13 options (if specified) will be applied. For the two symbologies that have optional check digits, Code39 and Interleave 2 of 5, the decoder will always transmit the check digit if the verification is disabled.

| Verify Check Digit | Return Check Digit | Description |
|---|---|---|
| Disabled | Enabled or Disabled | Check digit is not verified but is transmitted |
| Enabled | Disabled | Check digit is verified but is not transmitted |
| Enabled | Enabled | Check digit is verified and is transmitted |

*Table 13 - Resolution of Inconsistencies*

# A.3 Miscellaneous Barcode Information

## Height of a Linear Barcode

Industry standards suggest a height of either 6.5mm or 15% of the symbol length, whichever is greater. Symbols of less than recommended heights may cause recognition problems.

## Check Characters

Yes, we recommend the use of check-characters in barcodes. Operating without check-characters is not safe and will lead to errors that are costly to correct. Using check-characters positively affects data integrity especially when character density is at the limits and/or image quality is not at its best.

## Prevent Interleave 2 of 5 Partial Reading

A partial scan of an Interleave 2 of 5 symbol may decode and cause incorrect data to be read. To prevent partial scans on long symbols, you should include bearer bars. These are bars that run along the top and bottom edges of the barcode in the scanning direction. If a partial scan of the barcode occurs, the scanning beam will hit the bearer bar and will not decode. The bearer bar must touch the top and bottom of all the bars and must be at least 3 times as wide.

Another solution for the short scanning problem is to fix all Interleave 2 of 5 symbols to a set number of digits. Zeros can be used to pad the data to the set number of digits. The application program would then be set to only accept scans of the correct number of digits.

Finally, a check digit may be used. The Interleave 2 of 5 symbology has an optional check character which uses a weighted Modulo 10 scheme. The check character is the last character in the symbol and should be checked by the decoder and then transmitted with the data. Since Interleave 2 of 5 must always have an even number of digits, the leftmost character may need to be a zero when the check character is added. The standard check digit is calculated by assigning alternating 3,1,3,1… weights to respective data digits. These weights are then multiplied by their respective data digits and the products are summed. The check digit is the digit needed to be added to the sum to make it an even multiple of 10. An example would be if the sum of the products was 37, then the check digit would be 3.

## Equation to Determining Potential Number of Stored Barcodes

The number of barcodes that can be stored in the KDC memory depends on the size of the barcodes.

***Example:*** *If only UPCA barcodes are scanned and the check digit is not transmitted, then each barcode takes up 11 (barcode data) + 2 (added bytes) + 2 (length and type) + 4 (time stamp) = 19 bytes. The maximum number of UPCA barcodes that can be saved is 81,920/19 =4,311.*

If different length barcodes are mixed, then you cannot compute the maximum number of barcodes that can be stored.

## Data Buffer Full

When the data buffer is full, the KDC displays a message, **Buffer Full**, ignoring any command to scan barcodes. You must reset the data buffer to continue data collection

# Appendix B – FAQ

## B.1 Symbology

**Q: What barcode symbologies are supported by the KDC100?**

A: The KDC100 supports most major 1D barcode symbologies. Below is a list of the1D symbologies supported by the KDC100.

| ***KDC300*** | ***KDC100 / KDC 200 / KDC200P**** |
|---|---|
| ***2D Barcodes*** | ***1D Barcodes*** |
| AztecCode, AztecRunes, Codablock, Code16K, Code49, DataMatrix, MaxiCode, MicroPDF, PDF417, and QRCode | EAN13<br>EAN8<br>UPCA<br>UPCE<br>Bookland EAN<br>EAN13 with Add-on<br>EAN8 with Add-on<br>UPCA with Add-on<br>UPCE with Add-on<br>Interleave 2 of 5<br>ITF14<br>Code128<br>Codabar<br>GS1-128<br>Code39<br>Code93<br>Code35 |
| ***1D Barcodes*** | ***2D Barcodes*** |
| Codabar, Code11, Code32, Code39, Code128, EAN8, EAN13, GS1-128, I2of5, MSI, Plessey, PosiCode, GS1 DATABAR OMNI, GS1 Limited, RSSExpand, S2of5IA, S2of5ID, TLC39, Telepen, Trioptic, UPCA, and UPCE | PFD417 - *KDC200P only* |
| ***Postal Barcodes*** | |
| AusPost, CanadaPost, ChinaPost, JapanPost, KoreaPost, KixPost, Planet Code, Postnet (US), and UKPost | |
| ***OCR Fonts*** | |
| OCR-A, OCR-B, OCRUSCurrency, OCRMICRE13B, and OCRSEMIFONT | |

*Table 14 - Symbologies Supported by KDC*

## B.2 Host Interface

**Q: What interface ports are supported by the KDC100?**

A: The KDC100 has two USB ports; an ultra mini USB and a standard Type A USB. These interfaces support serial and USB-Serial.

## B.3 Battery

**Q: How long will the KDC100 battery last before it needs to be replaced?**

A: The battery on the KDC100 can be charged at least 300 times before it needs to be replaced.

**Q: How long does it take to charge the KDC100 battery?**

A: It takes about 2 hours to fully charge the KDC100 from an empty battery status to a fully charged status.

**Q: How many barcodes can a fully charged KDC100 scan?**

A: The KDC100 can scan more than 10,000 barcodes when fully charged.

**Q: How long will the KDC100 battery lasts in the sleep mode?**

A: The KDC100 lasts more than two weeks in sleep mode.

**Q: Can I replace the KDC100 battery?**

A: Yes. The KDC100 has a separate compartment for the battery which can be opened easily with a screw driver. Contact your distributor for a replacement battery.

## B.4 Memory

**Q: How many barcodes can be stored in the KDC100?**

A: The KDC100 has 100KB for database memory and 80KB of data memory. User can store 800 records in 100KB database memory and maximum 10,240 barcode data in 80KB data memory.

**Q: Can I download stored barcodes or wedge barcodes to my application?**

A: Yes. KTSync® is synchronization and wedging software included with the KDC100 which supports host devices running on *Microsoft*® Windows XP, Vista, 7, and Mobile5.0+.

**Q: Does the KDC100 support *Blackberry*®, *Symbian*®, *Apple*®, and *Palm*® devices?**

A: KTSync® supports devices running Microsoft® Windows XP, Vista, 7, and Mobile5.0+. The KDC100 can support *Blackberry*®, *Symbian*®, *Apple*®, *Palm*®, and others using KoamTac's software development kit. For a free copy of our SDK, please contact KoamTac.

# B.5 Programming

**Q: Can the KDC100 be programmed by a KoamTac partner?**

A: Yes. KoamTac's Application Generation tool provides an enhanced programming environment for developing custom applications for the KDC.

1. KDC supports, at most, three step data collection processes including the ability to perform various data functionality features.
2. KDC's database lookup function provides enhanced data processes enabling the KDC to display database results with or without scanned barcode data.
3. KDC can display a message from Host enabling two way communications and a messaging application.

**Q: Does KoamTac provide customization services for the KDC100?**

A: Yes. Custom applications or projects can be developed by KoamTac engineers. This service is provided for an additional fee to KoamTac. For more information regarding this service, please contact KoamTac.

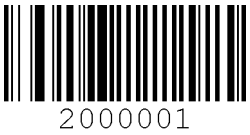
**Q: Can a partner develop a PC or PDA application for the KDC100?**

A: Yes. A software development kit for devices or applications running *Microsoft*® Windows XP, Vista, Windows 7, and Mobile5.0+ is available to our partners. Partners can use DLL and our demo source code included in the SDK for custom applications.

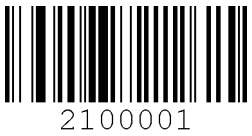
# APPENDIX C - SPECIAL BARCODES

## C.1 Set Symbologies

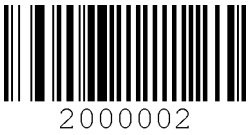
Enable EAN-13



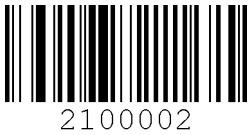

Disable EAN-13



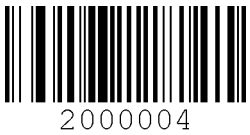

Enable EAN-8



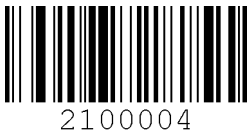

Disable EAN-8



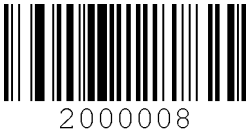

Enable UPCA




Disable UPCA

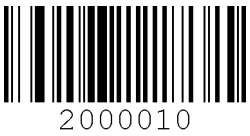



Enable UPCE

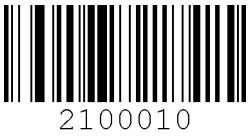



Disable UPCE

Enable Code39

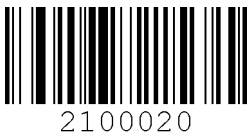



Disable Code39

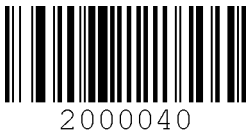



Enable ITF-14

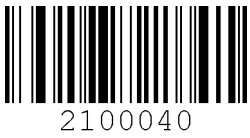
Disable ITF-14



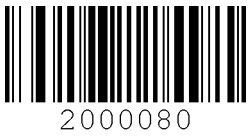
Enable Code128



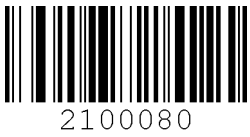

Disable Code128




Enable Interleave 2 of 5

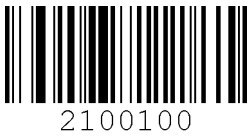



Disable Interleave 2 of 5

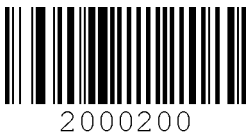



Enable Codabar

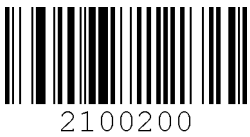
Disable Codabar




Enable GS1-128




Disable GS1-128

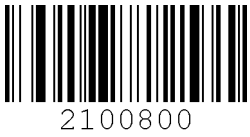



Enable Code93

Disable Code93

Enable Code35

Disable Code35



Enable Bookland EAN

2001000

Disable Bookland EAN

2101000

Enable EAN-13 Supplements

2002000

Disable EAN-13 Supplements

2102000

Enable EAN-8 Supplements

2004000

Disable EAN-8 Supplements

2104000

Enable UPCA Supplements

2008000

Disable UPCA Supplements

2108000

Enable UPCE Supplements

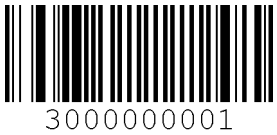
2010000

Disable UPCE Supplements

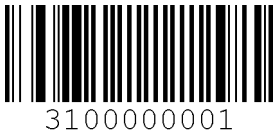
2110000

# C.2 Barcode Options

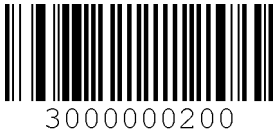
Codabar - do NOT transmit start/stop



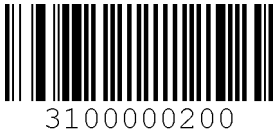

Codabar - transmit start/stop



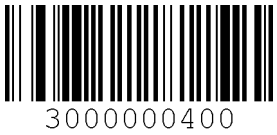

Convert UPCE to UPCA



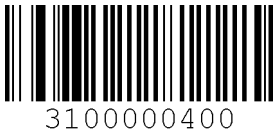

Do NOT convert UPCE to UPCA



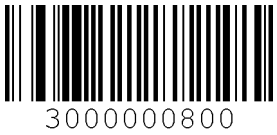

Convert EAN8 to EAN13



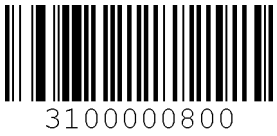

Do NOT convert EAN8 to EAN13



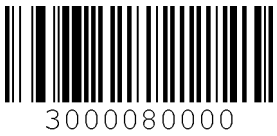

Convert UPCE to EAN13



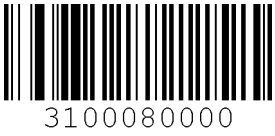

Do NOT convert UPCE to EAN13



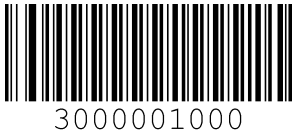

Convert UPCA to EAN13



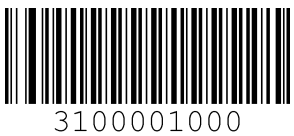

Do NOT Convert UPCA to EAN13




ReturnCheckDigit

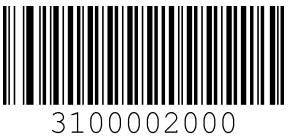



Do NOT ReturnCheckDigit

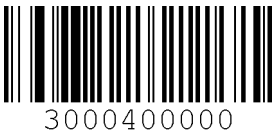


VerifyCheckDigit

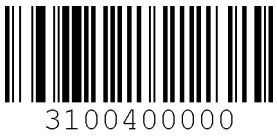
Do NOT VerifyCheckDigit



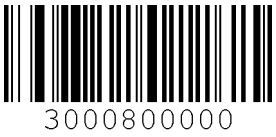

Verify check digit for I2of5



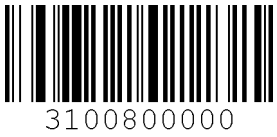

Do NOT verify check digit for I2of5



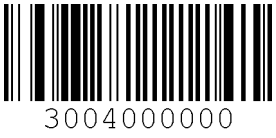

Verify check digit for Code39



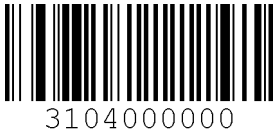

Do NOT verify check digit for Code39



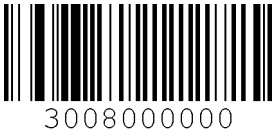

Return check digit for I2of5



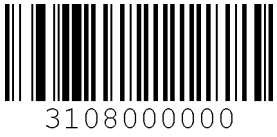

Do NOT return check digit for I2of5



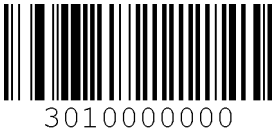

Return check digit for Code39



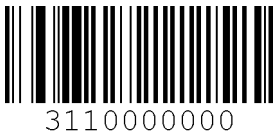

Do NOT return check digit for Code39



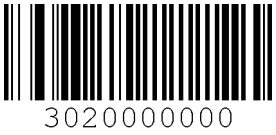

Return check digit for UPCE



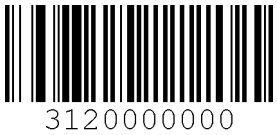

Do NOT return check digit for UPCE



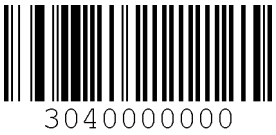
Return check digit for UPCA



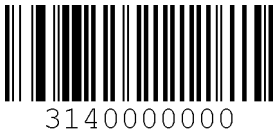

Do NOT return check digit for UPCA



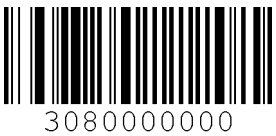

Return check digit for EAN8



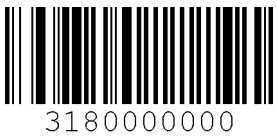

Do NOT return check digit for EAN8




Return check digit for EAN13




Do NOT return check digit for EAN13




## C.3 Delete Last Scanned Barcode

# C.4 Scan Options

Reversed Scan

3000000002

Normal Scan

3100000002

Wide scan angle

3000004000

Narrow scan angle

3100004000

High filter mode

3000008000

Normal filter mode

3100008000

# C.5 Scan Timeout

Timeout = 500msec

101F4

Timeout = 1sec

103E8

Timeout = 2sec

107D0

Timeout = 3sec

10BB8

Timeout = 4sec

10FA0

Timeout = 5sec

11388

Timeout = 6sec

11770

Timeout = 7sec

11B58

Timeout = 8sec

11F40

Timeout = 9sec

12328

Timeout = 10sec

12710

# C.6 Minimum Barcode Length

Minimum Length = 2

Minimum Length = 3

Minimum Length = 4

Minimum Length = 5

Minimum Length = 6

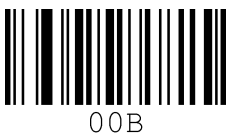
Minimum Length = 7

Minimum Length = 8

Minimum Length = 9

Minimum Length = 10

Minimum Length = 11




Minimum Length = 12

Minimum Length = 13

Minimum Length = 14

00E

Minimum Length = 15

00F

Minimum Length = 16

010

Minimum Length = 17

011

Minimum Length = 18

012

Minimum Length = 19

013

Minimum Length = 20

014

Minimum Length = 21

015

Minimum Length = 22

016

Minimum Length = 23

017

Minimum Length = 24

018

Minimum Length = 25

019

Minimum Length = 26

01A

Minimum Length = 27

01B

Minimum Length = 28

01C

Minimum Length = 29

Minimum Length = 30

Minimum Length = 31

Minimum Length = 32

Minimum Length = 33

Minimum Length = 34

Minimum Length = 35

Minimum Length = 36

# C.7 Security Level

Security level = 1

41

Security level = 2

42

Security level = 3

43

Security level = 4

# C.8 Data Process - Wedge/Store

Wedge Only

82000

Wedge & Store

82001

Store Only

82002

Wedge & Store if Sent

82003

Wedge & Store if Not Sent

82004

# C.9 Data Process - Data Format - Handshake

Data format - Barcode only

84001

Data format - Packet data

84010

Enable Handshake

86001

Disable Handshake

86010

# C.10 Data Process - Termination Character

None

CR

LF

CR+LF

Tab

# C.11 System

Memory Status

Reset Memory

Date/Time

Battery

Version

Button Lock

Button Unlock

Enable Auto Menu Exit

Disable Auto Menu Exit

Enable Port Status

Disable Port Status

Time & Battery

Type & Time

Type & Battery

Memory Status

Enable Scrolling

Disable Scrolling

Factory Default

# C.12 Sleep Timeout

Disable

51000

1sec

51001

2sec

51002

3sec

51003

4sec

51004

5sec

51005

10sec

5100A

20sec

51014

30sec

5101E

1min

5103C

2min

51078

5min

5112C

10min

51258

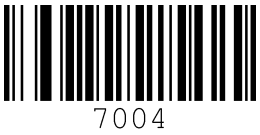
# C.13 Function

F1

F2

F3

F4




F5

F6

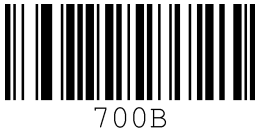
F7

F8

F9

F10

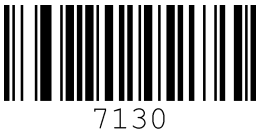
F11




F12

# C.14 Number

0




1

2

3

4

5

6

7

8

9

# C.15 Lower Case Alphabet

a

b

c

d

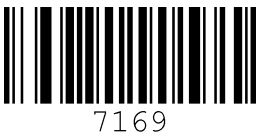
e

f

g

h

i




j

k

l

m

n

o

p

q

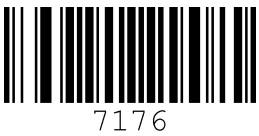
r

s

t

u

v




w

x

y

z

# C.16 Upper Case Alphabet

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

Q

R

S

T

U

V

W

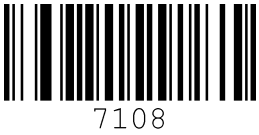
X

Y

Z

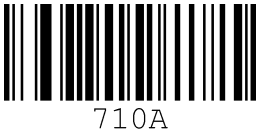
# C.17 Control Character

BS

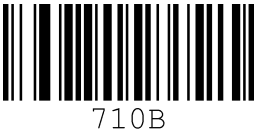



TAB

LF




VT

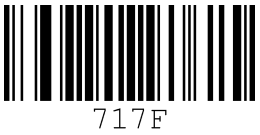



CR

ESC

Space

DEL



# C.18 Symbol Character

!

7121

“

7122

#

7123

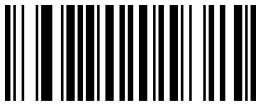
$

7124

%

7125

&


7126

‘

7127

(

7128

)

7129

*

712A

+

712B

,

712C

-

712D

.

712E

/

712F

:

713A

;

713B

<

713C

=

713D

>

713E

?

713F

@

7140

[

715B

\

715C

]

715D

^

715E

_

715F

`

7160

|

717B

717C

}

~

Start-String

Stop-String

Note:

- *You can compose a string up to 16 characters.*
- *A string would be composed by scanning the "Start-String", number/alphabet/special characters, and "Stop-String" special barcodes.*
- *The KDC will abort string composition if you do not scan "Stop-String" in one minute after scanning "Start-String" and number/alphabet/special characters.*

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